Gateway

Gateway™

7210 Server System Manual

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Preface

Conventions used in this manual

Throughout this manual, you will see the following conventions:

Convention	Description
ENTER	Keyboard key names are printed in small capitals.
CTRL+ALT+DEL	A plus sign means to press the keys at the same time.
Setup	Commands to be entered, options to select, and messages that appear on your monitor are printed in bold.
User's Guide	Names of publications are printed in italic.
Viewpoint	All references to front, rear, left, or right on the computer are based on the computer being in a normal, upright position, as viewed from the front.

Important

A note labeled important informs you of special circumstances.

Caution

A caution warns you of possible damage to equipment or loss of data.

Warning

A warning indicates the possibility of personal injury.

Getting additional information

Log on to the Gateway technical support at www.gateway.com/support to find information about your system or other Gateway products. Some types of information you can access are:

- Hardware driver and program updates
- Technical tips
- Service agreement information
- Technical documents and component information
- Frequently asked questions (FAQs)
- Documentation for peripherals or optional components
- Online technical support

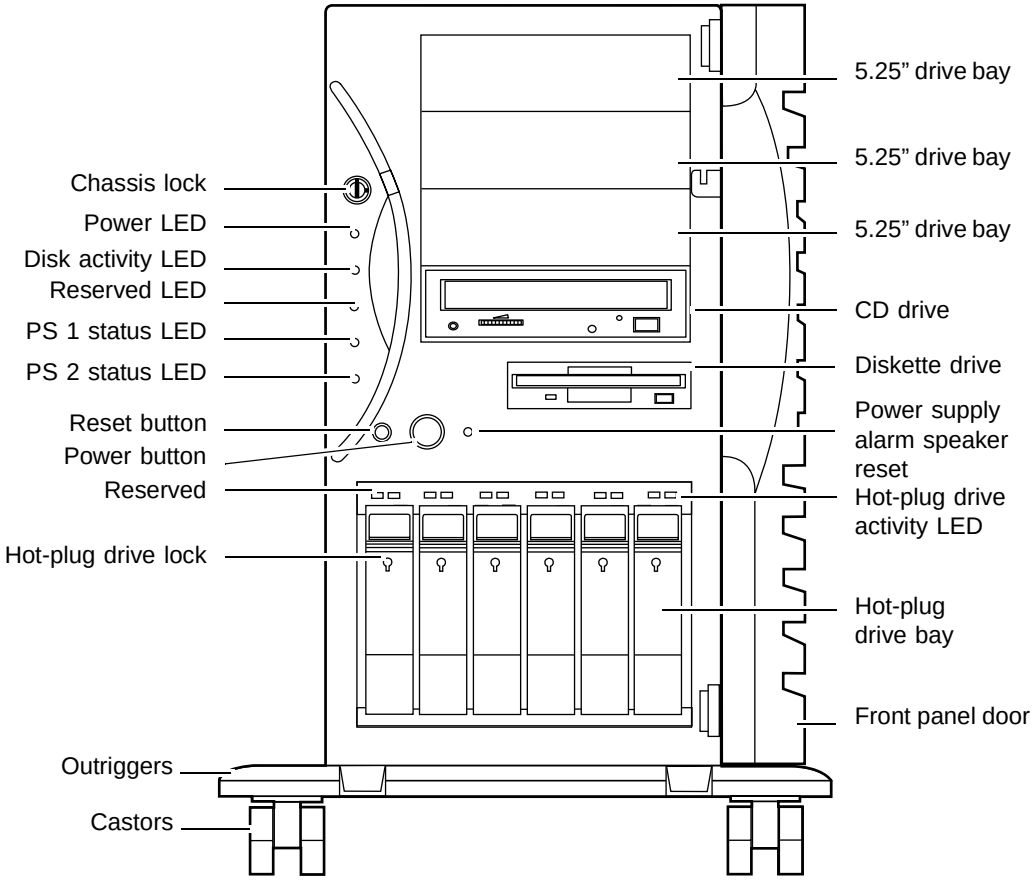
System Features

1

Standard features

- As many as two Intel® Pentium III processors with 100 MHz Front Side Bus (FSB) in Slot 1 processor sockets
- Four Dual Inline Memory Module (DIMM) sockets, that support up to 2.0 GB of PC100 Synchronous Dynamic Random Access Memory (SDRAM).
- Intel 440GX chipset
- Integrated Intel 82559 network controller providing 10/100 LAN support
- Integrated Super Vector Graphics Array (SVGA) video support with 2 MB of Synchronous Graphics RAM (SGRAM)
- Six PCI slots and one ISA slot for expansion cards
- ATX form factor system board and convertible tower/rack-mount chassis
- One 3.5 inch 1.44 MB diskette drive, one CD drive, and at least one hard drive
- Integrated voltage regulator modules (VRMs) for both processors
- Integrated Adaptec AIC 7896 dual function controller providing both low-voltage differential (LVD) Ultra2 small computer systems interface (SCSI) and Ultra Wide single-ended (SE) SCSI support
- Six drive hot-plug cage
- Keyboard port (PS/2), mouse port (PS/2), two serial ports, parallel port, video port, RJ-45 LAN port, and two Universal Serial Bus (USB) ports

Front panel



Chassis lock that prevents unauthorized access to both the front panel controls and to the interior of the system by locking the front bezel onto the chassis.

Power LED that glows green whenever the system is turned on. The LED also flashes when the system is in sleep mode.

Disk activity LED that glows green whenever any of the hard disks is actively reading or writing data.

Reserved LED this LED is reserved for future use.

PS1 status LED that glows green when the first power supply module in the redundant power supply is installed and working correctly. It flashes green if the power supply module fails or one of its power levels goes out of bounds. If the power supply module is not installed, this LED is off. The LED is only active on systems using the Redundant N+1 power supply.

PS2 status LED that glows green when the second power supply module in the redundant power supply is installed and working correctly. It flashes green if the power supply module fails or one of its power levels goes out of bounds. If the power supply module is not installed, this LED is off. The LED is only active on systems using the Redundant N+1 power supply.

System reset button is a recessed button that lets you reset the server if it has become nonresponsive.

Power button turns the server on and off. In an ACPI-enabled operating system like Windows 2000, you can set the power button to enter sleep mode rather than turning the system off.

Reserved LEDs these LEDs are reserved for future use.

Hot-plug drive lock secures the drive in place to prevent unauthorized or accidental removal.

The **outriggers** provide support for the castors.

Castors let you roll the server around for ease of service.

5.25-inch drive bays (3) to let you install additional 5.25-inch devices such as tape drives or an additional CD drive.

CD drive plays data or audio CDs

Diskette drive writes to and reads from 3.5-inch, 1.44 MB diskettes.

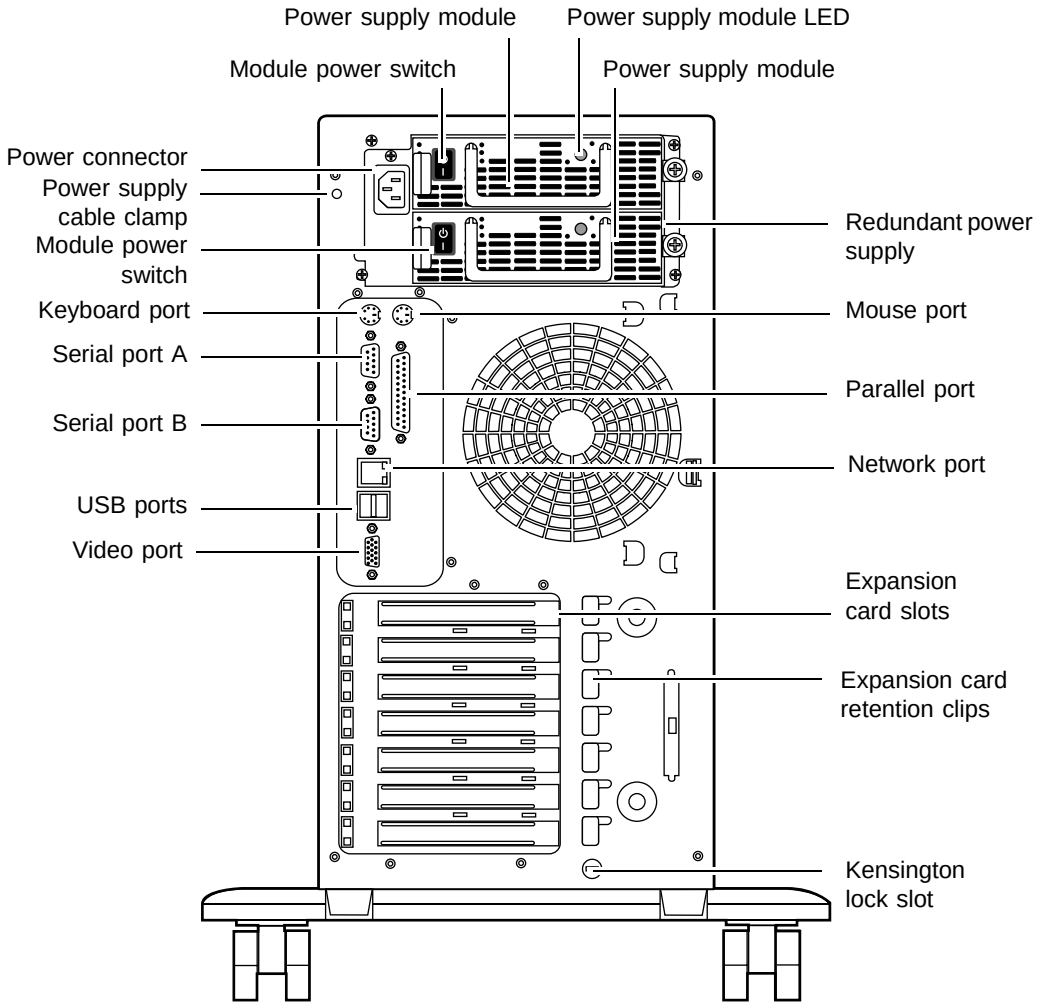
Power alarm speaker reset disables the power supply alarm speaker. The alarm is not cleared and the appropriate LED continues to flash until the failed power supply module is replaced. The alarm is only active on systems using the N+1 redundant power supply.

Hot-plug drive activity LED that indicates when the hot-plug drive immediately below it is reading or writing data.

Hot-plug drives up to six hot-swappable hot-plug drives connected to a hot-plug backplane.

Front panel door covers the front panel controls to prevent unauthorized or accidental access.

Back panel



Module power switches (2) provide independent power control for each redundant power supply module.

Power supply modules (2) provide redundant power and hot-swap capability to power the server with minimal downtime.

Redundant power supply provides two hot-swappable power supply modules that can independently support the server's power requirements.

PS/2 power supply (not shown) provides sufficient power to run the server at a reduced cost.

Mouse port connects a PS/2-compatible mouse.

Parallel port connects a printer or other parallel device.

Network port lets you connect to a network. The adjacent indicator LEDs show LAN activity (yellow) and 100 Mbit speed (green).

Expansion card slots (7) allow you to install up to four 32-bit, 33 MHz PCI expansion cards, two 32-bit, 66 MHz PCI expansion cards, and one ISA expansion card.

Expansion card retention clips (7) allow screwless retention of the expansion cards for ease of maintenance and installation.

Kensington lock slot lets you install a security cable and lock.

Video port connects the first (or only) monitor interface cable. The video controller is integrated in the system board.

USB ports connect external Plug-and-Play devices, such as printers and pointing devices, that are automatically configured when they are plugged into the computer through one of these ports. USB keyboards and mice are not supported.

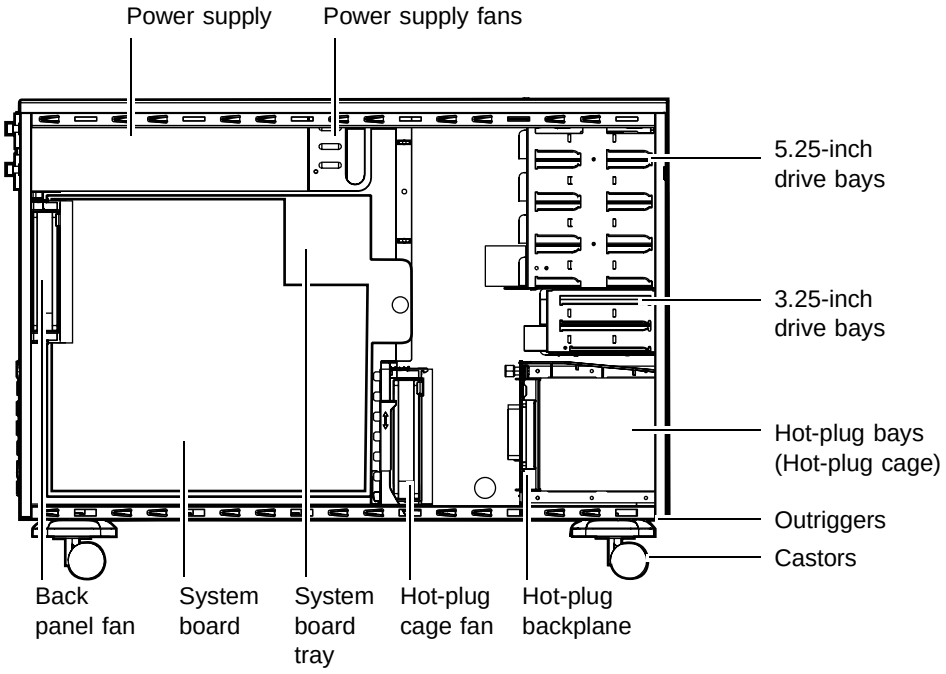
Serial ports (2) connect to serial devices.

Keyboard port connects a PS/2-compatible keyboard.

Power supply cable clamp secures the power supply cords so that they are not accidentally pulled from the power supply.

Power connector connects the computer power cord. The other end of the power cord plugs into an AC outlet or power strip.

Interior of system



Power supply provides power to the system components. The redundant power supply provides hot-swap capability and fault tolerance.

Power supply fans (only available with redundant power supply) provide cooling for the redundant power supply modules.

5.25-inch drive bays provide space for up to four 5.25-inch drives. A CD drive comes standard with the system and occupies one of the 5.25-inch drive bays.

3.25-inch drive bays support up to two 3.25-inch drives. A diskette drive comes standard with the system and occupies one 3.25-inch drive bay. A hard drive is typically installed in the second drive bay.

Hot-plug bays support up to six 1-inch high 3.25-inch SCA SCSI hard drives. Empty drive bays contain empty carriers to control airflow and EMC characteristics.

Outriggers provide support for the castors.

Castors let you move the unit easily for maintenance and servicing.

Hot-plug backplane provides the control for the hot-plug drives.

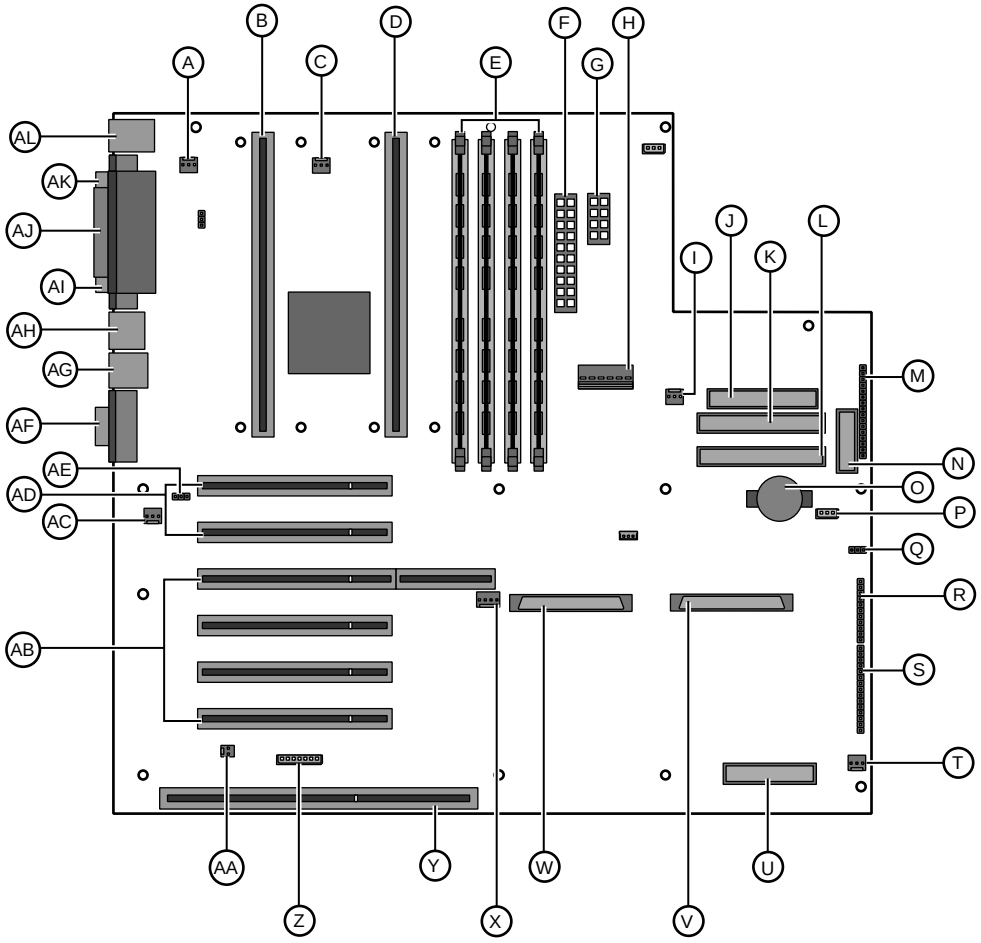
Hot-plug cage fan provides cooling for the hot-plug drives and other internal components.

System board tray supports the system board and makes it easier to remove and install.

System board see “System board” on page 8.

Back panel fan provides cooling for system board components and additional cooling for the power supply.

System board



A Secondary processor fan connector

B Secondary processor connector

C Primary processor fan connector

D Primary processor connector

E DIMM slots (4)

F Main power connector, 24-pin

G Auxiliary power connector, 10-pin (not used)

H ATX auxiliary power connector, 6-pin

I Fan connector (not used)

J Diskette drive connector

K Primary IDE connector

L Secondary IDE connector

M ATX front panel connector

N Front panel connector, 16-pin

O Battery

P Isolated server management (ISOL) intelligent management bus (IMB) connector (not used)

Q Jumper J4J2 (BMC boot block write enable)

R Jumper block (jumper J3J1)

S Jumper block (jumper J2J1)

T Fan connector (hot-plug drive bay fan)

U Server monitor module (SMM) feature connector

V Ultra wide SCSI connector

W Ultra2 SCSI connector

X Hard drive LED connector

Y ISA connector

Z Intelligent chassis management bus (ICMB) connector (not used)

AA Chassis intrusion connector (not used, chassis intrusion is communicated through the front panel connector)

AB PCI 32-bit, 33 MHz connectors

AC Fan connector (back panel fan)

AD PCI 32-bit, 66 MHz connectors

AE Wake on LAN jumper

AF Video connector

AG Dual USB connectors

AH RJ-45 Ethernet LAN connector and LEDs

AI Serial Port A

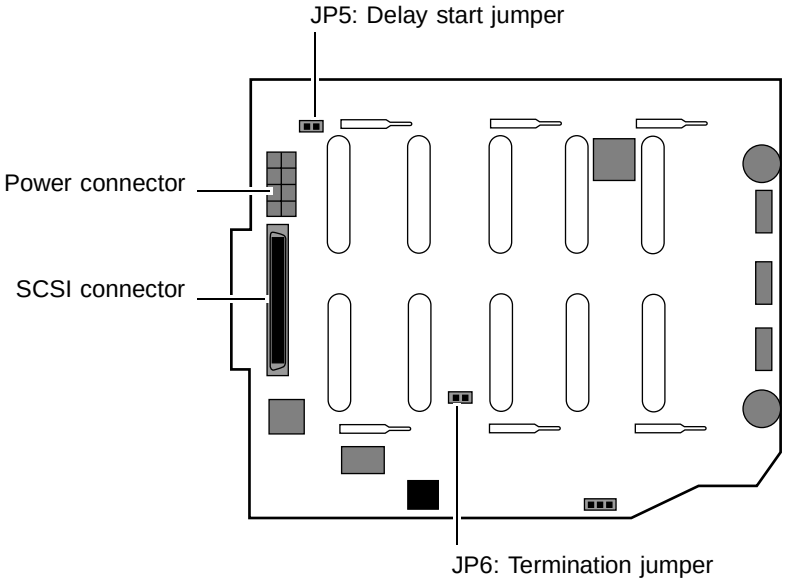
AJ Parallel port

AK Serial port B

AL Stacked keyboard and mouse ports

Hot-plug backplane

Back of the hot-plug backplane board



JP5: Delay start jumper controls the spin-up sequence of the drives attached to the backplane. If you enable delay start, the drives spin up one at a time in order of their SCSI ID. If you disable delay start, all drives spin up simultaneously. Set the jumper according to the table below.

Position	Description
On (default)	Enables delay start
Off	Disables delay start

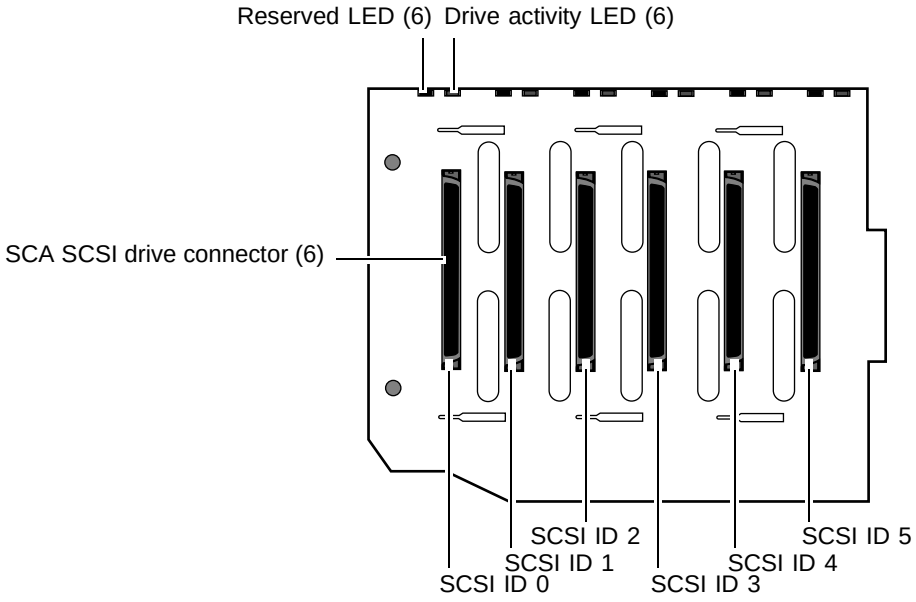
JP6: Termination jumper enables or disables termination for the backplane. The backplane is designed to occupy one end of the bus and is usually terminated. If you configure the SCSI bus so the backplane is not at the end of the bus, disable termination. Set the jumper according to the table below.

Position	Description
On	Termination is disabled
Off (default)	Termination is enabled

SCSI connector provides the point of connection for the SCSI cable from the RAID controller.

Power connector provides the point of connection for the power cable from the power supply.

Front of the hot-plug backplane board



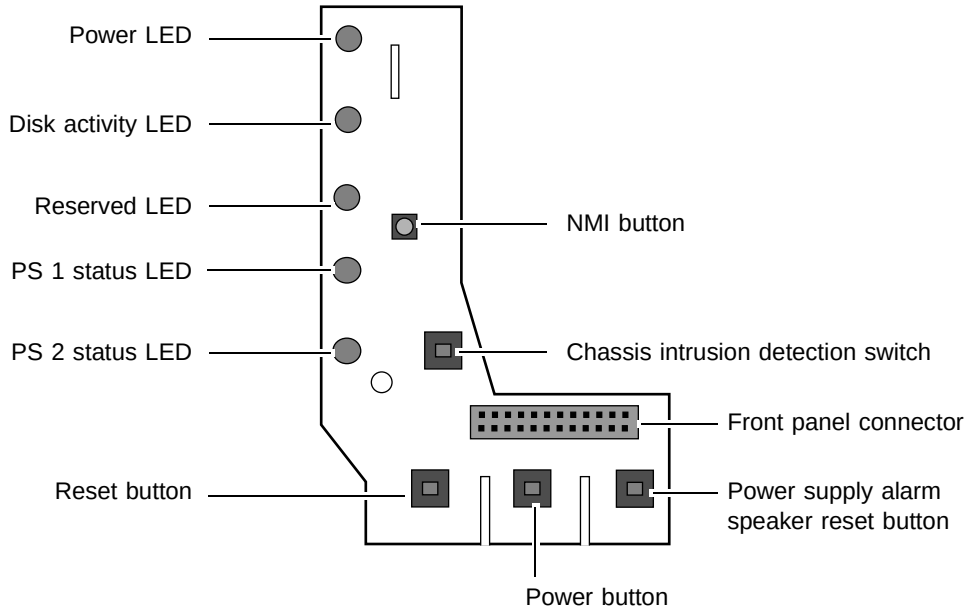
Reserved LED (6) reserved for future use.

Drive activity LED (6) glows green when the drive is actively reading or writing data.

SCA SCSI drive connector (6) provides the single point of connection for the six SCA SCSI drives.

Front panel board

The front panel board supports the LEDs and buttons accessible from the front panel. The buttons and LEDs on the front panel board are shown and described below.



Power LED that glows green whenever the system is turned on. The LED also flashes when the system is in sleep mode.

Disk activity LED that glows green whenever any of the hard disks is actively reading or writing data.

Reserved LED this LED is reserved for future use.

PS1 fault LED that flashes green whenever the first power supply module fails or one of its power levels goes out of bounds.

PS2 fault LED that flashes green whenever the second power supply module fails or one of its power levels goes out of bounds.

Reset button lets you reset the server if it has become nonresponsive.

Power button turns the server on and off. In an ACPI-enabled operating system like Windows 2000, you can set the power button to enter sleep mode rather than turning the system off.

Power supply alarm speaker reset button disables the power supply alarm speaker. The alarm is not cleared and the appropriate LED continues to glow until the failed power supply module is replaced. The alarm is only active on systems using the N+1 redundant power supply.

NMI button allows a technician servicing the server to generate a non-maskable interrupt (NMI) to help debug server errors.

Chassis intrusion detection switch sends a message to the system management hardware logging an event when the front bezel is removed.

Front panel connector connects the controls on the front panel with the system board.

2

System Setup

Setting up the server

Use the instructions on the quick guide poster that came with the server to assemble the server.

You can prepare a safer working environment before assembling the server by following these guidelines:

- Use a clean, flat, and stable surface for the server. Allow at least 12 inches at the rear of the computer for cabling and air circulation.
- Obtain an adequately rated uninterruptible power supply (UPS). A UPS protects against AC line spikes, power interruptions, and other power fluctuations that may damage the server.
- Protect the server from extreme temperature and humidity. Do not expose it to direct sunlight, heater ducts, or other heat-generating objects.
- Keep the computer away from equipment that generates magnetic fields, such as unshielded stereo speakers. Even a telephone placed too close to the computer may cause interference.
- Plug the computer into a wall outlet, power strip, or uninterruptible power supply (UPS). Make sure the power cords are secured in the power supply cable clamp on the back panel.

Important

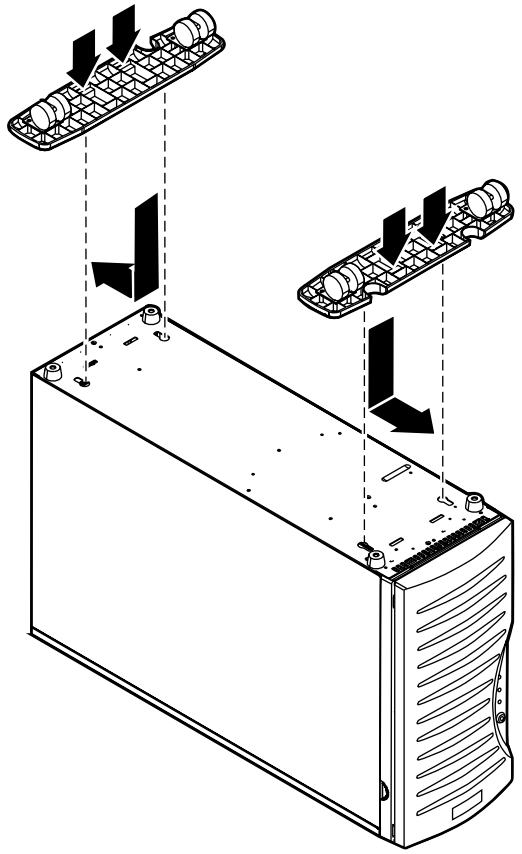
Keep the boxes and packing material. If you need to send the computer to Gateway for repairs, you must use the original packaging or your warranty may be voided.

Installing the outriggers and castors

The tower chassis is shipped with small rubber feet to prevent it from slipping and to minimize vibrations when the chassis is placed on a desktop. However, if you intend to place the chassis on the floor, you may find it easier to maintain the system if it has castors and can be rolled out for easier access.

To install the outriggers and castors:

1. Gently turn the chassis upside down, placing it on the top panel.
2. Align the outriggers and castors with the slots on the bottom panel of the chassis.



3 Place the tabs on the outriggers into the corresponding slots on the bottom panel and slide the outriggers toward the ends of the chassis.

4 Carefully return the chassis to the upright position.

Starting the server

Before you start the server for the first time:

- The redundant power supply is autosensing. It automatically determines the voltage of the incoming power source and compensates accordingly. The optional PS/2 power supply has a voltage selector switch. Make sure that the voltage selector switch on the PS/2 power supply is set to the correct voltage for your area.
- Make sure all cables are firmly connected to the proper ports on the back panel of the computer.

Caution

Electricity can flow from connected peripherals into the system causing a shock. Make sure the server and peripherals are turned off and unplugged from the power outlet when you connect peripherals to the computer.

- Make sure that both power supply modules in the redundant power supply are turned on. (The PS/2 power supply does not need to be turned on separately.)
- Make sure the computer and monitor are plugged into an AC outlet, power strip, or UPS and that the power strip or UPS is turned on.

To start the system:

1 If you have connected the system components to a power strip or UPS, make sure all the system components are turned off, then turn on the power strip or UPS.

2 Turn on the monitor.

3 Turn on the computer. Make sure the individual power buttons on the power supply modules are turned on. The light-emitting diodes (LED) in the power button and on each power supply module are on when the power is on.

4 Turn on any other components connected to the computer, such as speakers, a printer, or a scanner.

If nothing happens when you turn on the system:

- Make sure that the power cables are securely plugged in and that the power strip or UPS (if you are using one) is plugged in and turned on.
- Make sure the monitor is connected to the computer, plugged into the power strip, AC outlet, or UPS, and turned on. You may also need to adjust the brightness and contrast controls on the monitor.

Understanding the Power-On Self-Test

When you turn on your computer, the power-on self-test (POST) routine checks the system memory and components. To see this information on the screen, press ESC during POST. Press SPACEBAR to bypass the remaining memory count.

The system displays an error message if POST finds any problems. Write down any error messages that you see. If you continue to have problems, these error messages may help you or Gateway technical support diagnose the cause.

Setting up the operating system

The first time you start the server, the operating system takes a few minutes to set up.

Refer to your operating system documentation for specific questions regarding the operating system.

To complete the operating system setup:

1 After the computer starts, the start-up wizard opens. Continue by clicking **Next**.

2 Type the requested information in the appropriate text boxes. When you have finished typing the information, continue by clicking **Next**.

3 Continue following the instructions and selecting options in the start-up wizard dialog boxes, clicking **Next** to move through the dialog boxes, until the wizard tells you to restart your computer.

4 If you need to return to the previous dialog box to change any of your entries, click **Back**.

5 Restart the server. The setup is complete.

Important

For other operating systems, such as Windows® 2000 or Novell® Netware, refer to the appropriate operating system software manual.

Turning off the server

Every time you turn off the server, shut down the operating system first. You may lose data if you do not follow the proper procedure.

To turn off the server in Windows NT:

1 Click **Start**, then select **Shut down the computer?**, then **Shut Down**.

2 Click **OK**. The operating system shuts down. When you see a message saying **It is now safe to turn off your computer**, turn off the computer by pressing the power button.

3 Turn off the monitor and peripherals.

Important

For other operating systems, such as Windows 2000 or Novell Netware, refer to the appropriate operating system software manual.

Warning

When you turn the computer off, some electric current still flows through it. Before opening the computer case or connecting or removing any peripherals, turn off the computer, then unplug the power cord.

Resetting the server

If your computer does not respond to keyboard or mouse input, you may have to close programs that are not responding. If closing unresponsive programs does not restore your computer to normal operation, you may have to reset the system.

To close unresponsive programs and reset the server in Windows NT:

1. Press CTRL+ALT+DEL. A window opens that lets you close a program that is not responding.
2. Click **Task Manager**, then select the program that is not responding.
3. Close the program by clicking **End Task**.
4. If the computer does not respond, press the reset button to restart the computer.

As a part of the regular startup process, a program to check the disk status runs automatically. When the checks are finished, Windows starts.

Important

For other operating systems, such as Windows 2000 or Novell Netware, refer to the appropriate operating system software manual.

3

Case Access

The Gateway 7210 Server is designed as a toolless chassis. None of the normal user-serviceable parts require a tool of any kind to remove, install, or replace. In some cases, where the pieces fit very tightly, a tool may make the job easier.

The various clips, tabs, thumbscrews, and other devices that allow toolless construction are color-coded in green to show you where they are. Most of these devices are either self-explanatory or very easy to figure out.

When in doubt, the steps and illustrations provided in this manual show you the way to remove any device you may need to replace.

Preventing static electricity discharge

Before opening the computer case, follow these precautions to prevent damage from static electricity. When opening your computer case, always perform the following procedure.

Caution

Static electricity can permanently damage electronic components in your computer. Prevent electrostatic damage to your computer by following static electricity precautions every time you open your computer case.

To prevent static electricity discharge:

1. Turn off the computer power.
2. Touch a bare metal surface on the back of the computer.
3. Unplug all power cords from AC outlets and disconnect the modem cable (if installed).

Also follow these static electricity precautions:

- Avoid static-causing surfaces such as plastic and packing foam in your work area.
- Remove the parts from their antistatic bags or containers only when you are ready to use them. Do not lay parts on the outside of an antistatic bag or container because only the inside provides antistatic protection.
- Always hold cards by their edges and their metal mounting brackets. Avoid touching components on the cards and the edge connectors that connect to expansion slots. Never slide cards or other parts over any surface.

Opening the case

Important

All references to front, back, left, or right on the computer are based on the computer being in a normal, upright position, as viewed from the front.

The only components that are accessible from outside of the chassis are the front panel indicator lights. To access any of the removable media drives, the hot-plug drives, or the power and reset switches you must open the bezel door. To work on the internal components of the computer, you must open the chassis, which has two removable parts:

- A bezel that covers the front of the chassis
- A side panel that permits access to the interior of the case

Because the components inside the computer are extremely sensitive to static electricity, make sure you follow the precautions at the beginning of this chapter to avoid static electricity damage.

Only qualified personnel should open the system for maintenance. If you are qualified to maintain the system yourself, make sure you are properly grounded before opening the system chassis.

Warning

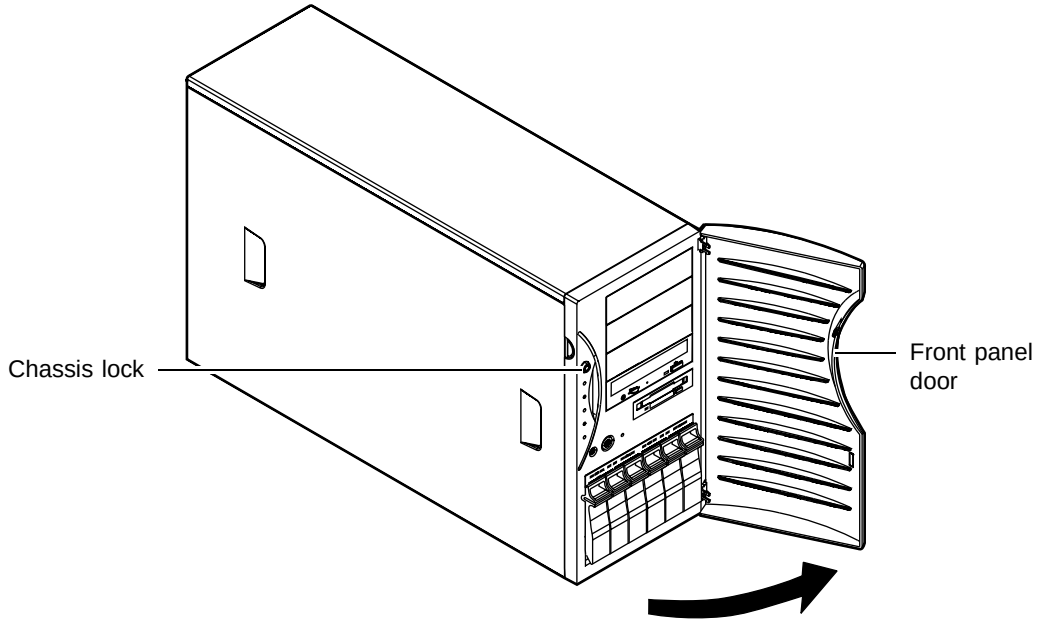
Avoid exposure to dangerous electrical voltages and moving parts by turning off your computer and unplugging the power cord and modem cable (if installed) before removing the chassis cover.

Opening the bezel door

The bezel door covers the removable media drives, the hot-plug drives, and the front panel controls. To access these components, you must open the bezel door.

To open the bezel door:

1. If the bezel door is locked, unlock it.
2. Grip the bezel door handle next to the front panel indicator lights and pull the door open.

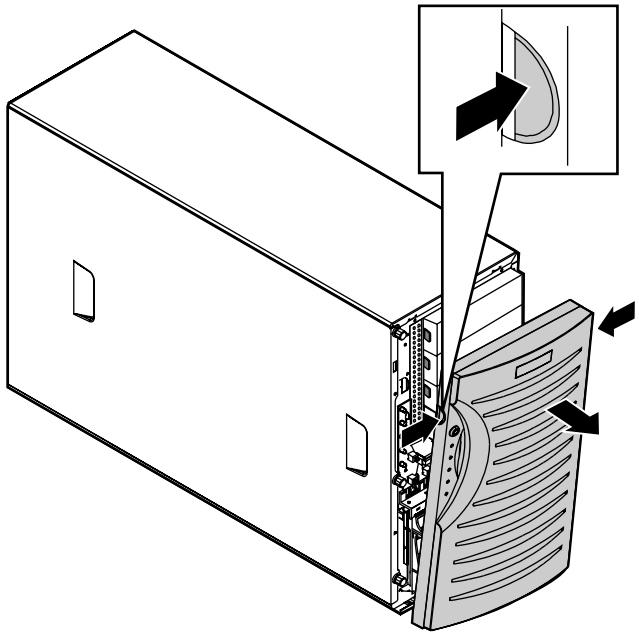


Removing the front bezel

The locking front bezel provides secure access to the system components. You must unlock and remove the front bezel before you can remove the side panel and access the interior of the system.

To remove the front bezel:

1. Power down, turn off, and disconnect all power to the server.
2. Observe all safety and static electricity precautions, see “Preventing static electricity discharge” on page 22.
3. Unlock the front bezel, if it is not already unlocked.
4. Press the tabs at the sides of the bezel and pull the top of the bezel away from the server.



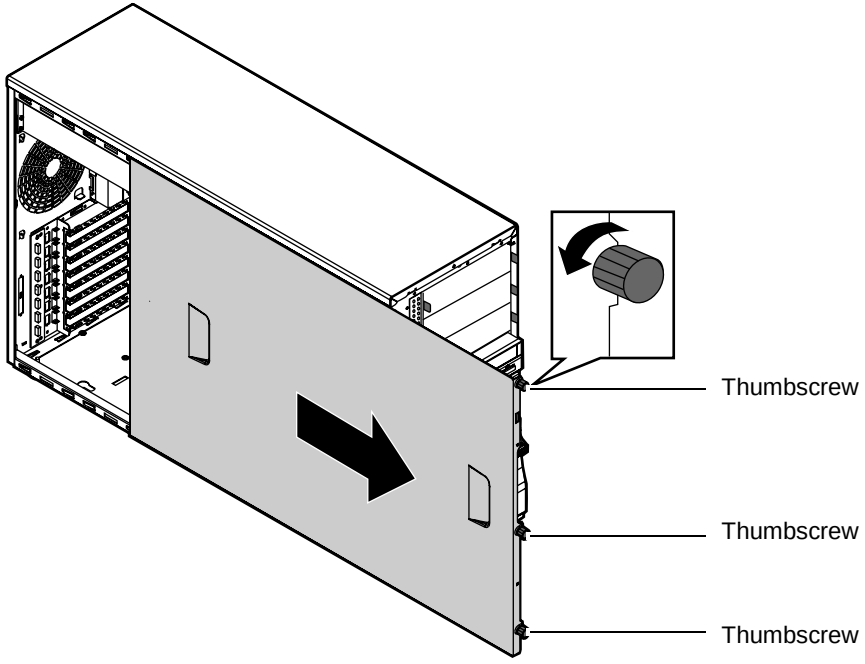
5. Lift the bezel away from the chassis.

Removing the side panel

The side panel cannot be removed unless the front bezel has already been removed. The side panel provides access to all of the internal components of the server.

To remove the side panel:

1. Turn off the computer and disconnect all power cords.
2. Observe all safety and static electricity precautions, see “Preventing static electricity discharge” on page 22.
3. Remove the front bezel as described in “Removing the front bezel” on page 25.
4. Loosen the three thumbscrews from the left side of the front panel.



5. Slide the side panel to the front, disengaging the retaining tabs on the top edge of the panel from the top of the chassis.
6. Lift the panel out and away from the chassis.

Closing the case

Close the chassis as soon as you finish installing or removing components so that dust and dirt do not collect inside the computer.

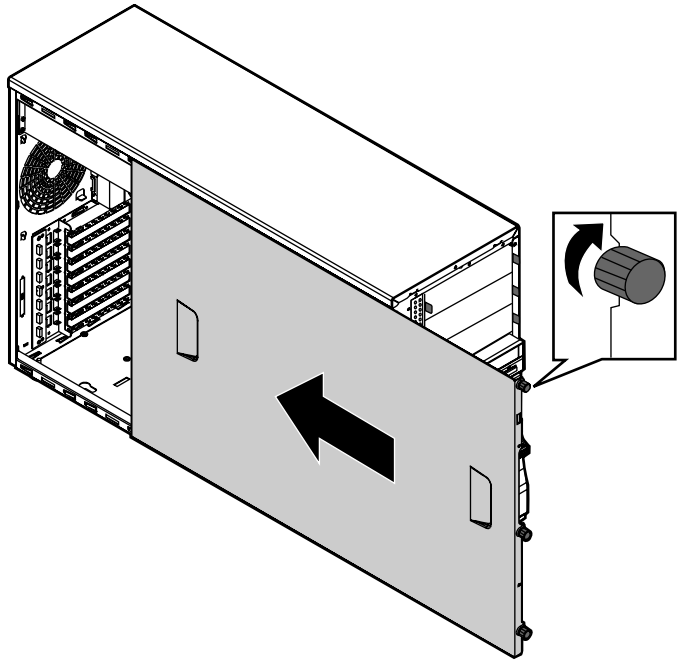
Replacing the side panel

Closing the side panel covers the internal components. You must close the side panel and replace the front bezel before you can operate the server. If you do not, a system intrusion event is logged by the system management hardware. Be careful not to pinch any cables in the panel as you replace it.

To replace the side panel:

1. Hold the side panel at an angle to the chassis and 3/4-inch forward. Engage the retaining tabs on the bottom edge of the panel with the slots at the bottom edge of the chassis.
2. Swing the top of the panel toward the chassis, engaging the retaining tabs on the top edge of the side panel with the slots on the chassis.
3. Slide the panel toward the back of the chassis 3/4-inch, securing it in place.

4 Tighten the thumbscrews.

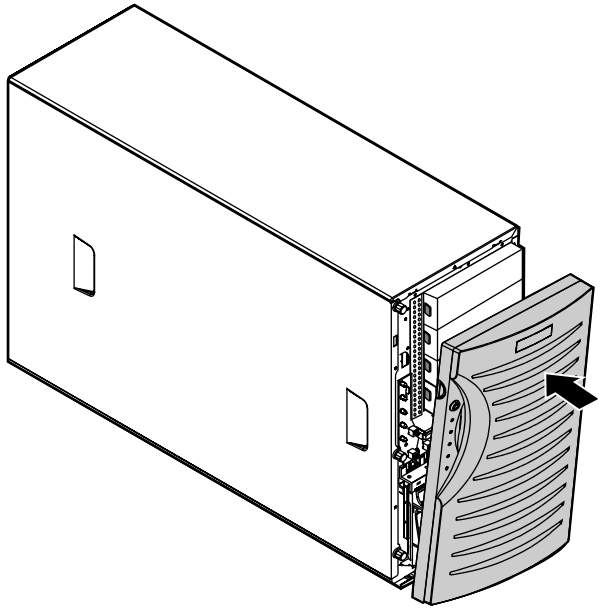


Replacing the front bezel

Once the side panel is in place, you must replace the bezel to operate the server. If the server is run without the bezel installed, a chassis intrusion event is logged by the system management hardware.

To replace the front bezel:

1. Holding the bezel at an angle to the front of the chassis, place the hinge slot on the bottom of the bezel over the flange on the bottom edge of the chassis.
2. Swing the top of the bezel toward the chassis until the retaining tabs snap into place.



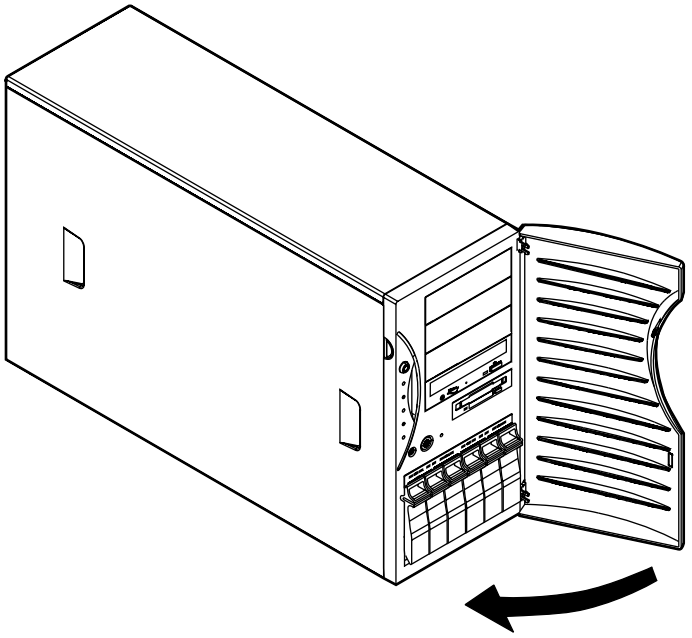
3. Lock the front panel lock, if necessary.

Closing the bezel door

Close the bezel door to prevent accidental or unauthorized access to the server controls, hot-plug drives, and removable media drives.

To close the bezel door:

1 Swing the bezel door to the left and press it firmly into place.



2 Lock it if necessary.

Replacing and Adding Internal Devices

4

The Gateway 7210 Server is designed as a toolless chassis. None of the normal user-serviceable parts require a tool of any kind to remove, install, or replace. In some cases, where the pieces fit very tightly, a tool may make the job easier.

The various clips, tabs, thumbscrews, and other devices that allow toolless construction are color-coded in green to show you where they are. Most of these devices are either self-explanatory or very easy to figure out.

When in doubt, the steps and illustrations provided in this manual show you the way to remove any device you may need to replace.

Drives

There are several types of drives and similar devices that can be installed in the server. All drives are easy to install and require no tools to replace.

Preparing to replace or add a drive

One 3.5-inch diskette drive, one 3.5-inch hot-plug hard drive, and one CD drive are included with the computer. You can add additional drives of the following types:

- 1-inch high, 3.5-inch hot-plug drives.
- Half-height 3.5-inch hard drives - The system board has two IDE connectors that support as many as two drives each. IDE drives include the IDE CD drive.
- Half-height 5.25-inch devices.

As you prepare to install drives, keep the following in mind:

- If you remove a drive, place it in an antistatic bag or container.
- Before you install a drive, see the drive documentation for information on configuring the drive, setting any jumpers on the drive, and attaching cables to the drive.
- If you are installing a drive that uses an add-in controller, install the expansion card before you install the drive.
- IDE hard drives can be configured as single, master, or slave. IDE CD drives can be configured as master or slave. Configure the drives by using the drive-select jumpers located on the drives.
- If only one drive is attached to a controller cable, configure the drive as single if it is a hard drive or master if it is a CD-ROM drive. If two drives of any type are attached to the cable, configure one as master and one as slave.
- You may need to configure the drives you install using the BIOS Setup utility. Select F2 at start up to open the BIOS Setup utility.

Drive cabling information

The system includes five different types of drive cables. Each drive cable is clearly labeled, indicating the cable type and showing which end to connect to the appropriate connector on the system board and which end to connect to the drive.

- Use the diskette drive connector cable to connect the diskette drive.
- Use the standard IDE connector cable to connect IDE devices such as CD drives and standard IDE hard drives.
- Use the IDE DMA-66 cable to connect DMA-66-compatible hard drives.
- Use the SCSI SE cable to connect single-ended SCSI devices. This cable requires termination, either on the device or as a plug-in terminator on the cable.
- Use the SCSI LVD cable to connect the hot-plug backplane to the integrated SCSI controller on the system board.

Replacing the diskette drive

The diskette drive is near the bottom of the stack of drive bays. If the diskette drive included with the system fails, replace the drive.

To replace the diskette drive:

1. Turn off the system and disconnect the power cord and all other external peripheral devices.
2. Open the case. (See “Opening the case” on page 23 and “Preventing static electricity discharge” on page 22.)
3. Locate the 3.5-inch diskette drive.
4. Remove the power and data cables from the back of the drive, noting their locations and orientations. (You will reconnect these cables after you install the new drive.)

   The 3.5-inch diskette drive is secured in the chassis by a set of removable rails. The rails let the drive slide into and out of the guides in the front bay.

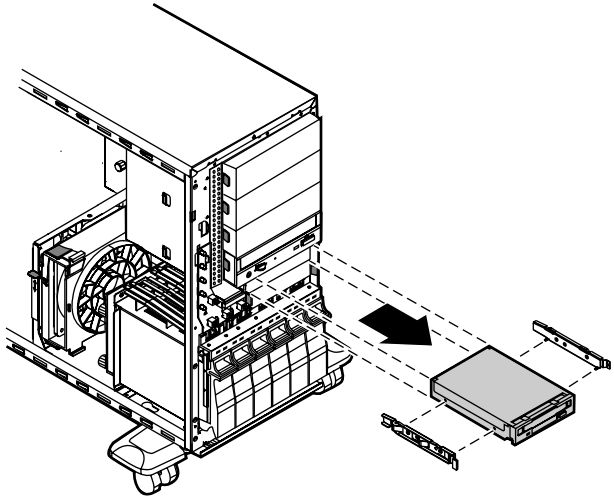
5 Disengage the rail locking tabs by pressing in on both front rail extensions, then move the drive slightly out of the bay by pushing on the back of the drive.

6 Pull the drive out of the chassis.

7 Remove the rails on both sides of the drive and snap them onto the new drive in the same positions. The rails are labeled. Make sure the front rail extensions are towards the front of the drive.

Important

The rails on the 3.5-inch diskette drive are different from those on the hard drive and the CD drive. Make sure you install the correct rails on each drive.



8 Align the rails with the appropriate open bay, then slide the drive into the bay until the locking tabs snap into place.

9 Connect the power and data cables, making sure the cables are in their original positions. (See your drive documentation for proper drive jumper settings and cable orientation.)

10 Close the case. (See “Closing the case” on page 27.)

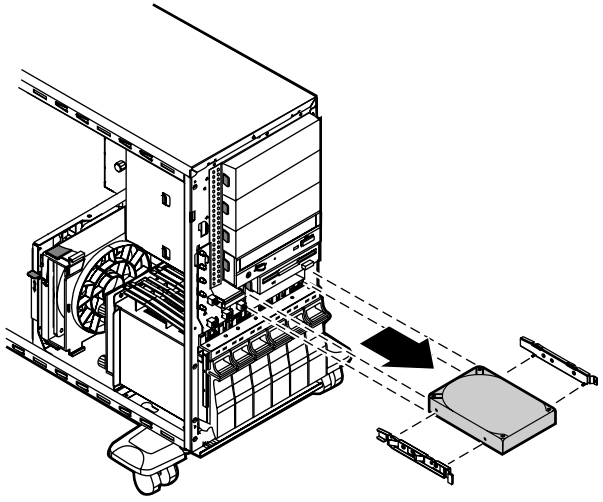
11 Reconnect the power cord and all other external peripheral devices, then turn on the system.

Replacing the optional boot drive

An optional IDE hard drive can be shipped with the server. This drive is mounted at the bottom of the drive stack accessible from the front of the chassis.

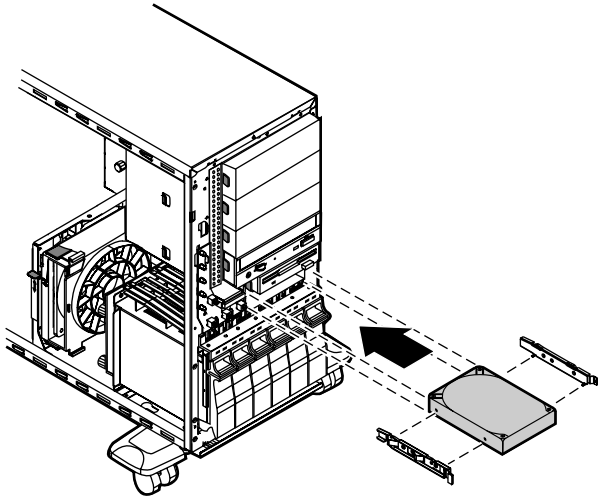
To replace the optional boot drive:

1. Turn off the system and disconnect the power cord and all other external peripheral devices.
2. Open the case. (See "Opening the case" on page 23 and "Preventing static electricity discharge" on page 22.)
3. Locate the 3.5-inch hard drive at the bottom of the drive stack.
4. Remove the power and data cables from the hard drive.
5. Grip the mounting rails firmly with thumb and index finger and pull the drive carefully straight out of the drive stack.



6. Remove the mounting rails from the hard drive.
7. Place the old drive in an antistatic bag or container, then place the new hard drive on a static-free surface with the top up and the connectors facing you.

8 Install the two drive mounting rails to the new hard drive, making sure the front rail extensions are towards the front of the device. The rails are labeled.



9 Align the rails with the open bay at the bottom of the drive stack, then slide the drive into the stack until the locking tabs snap into place (make sure that the data and power connectors on the drive face the inside of the server).

10 Connect the power and data cables to the drive. (See the drive documentation for proper cable orientation.)

11 Close the case. (See “Closing the case” on page 27.)

12 Reconnect the power cord and all other external peripheral devices, then turn on the system.

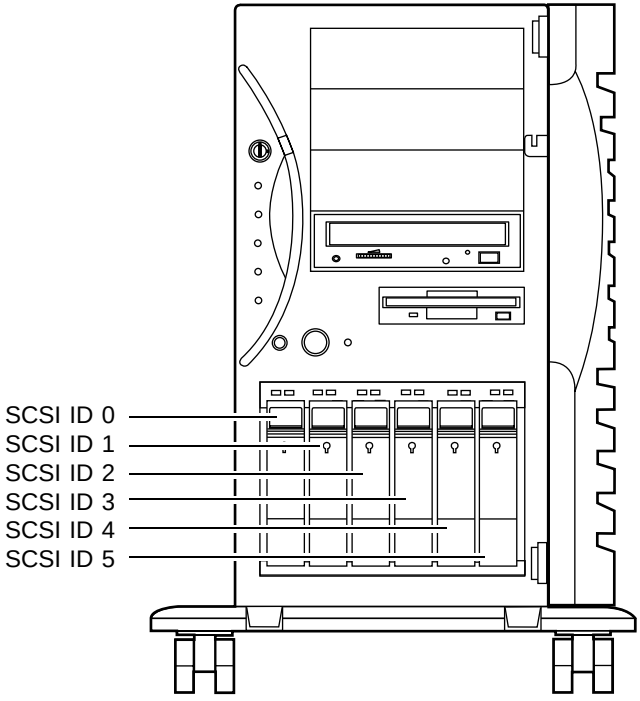
Replacing a hot-plug drive

The hot-plug drives are located at the bottom of the front panel. The hot-plug bay supports as many as six 1-inch high 3.5-inch SCA-II SCSI hard drives.

The hot-plug drives are assigned SCSI ID numbers by the hot-plug backplane with the drive at the far left side of the hot-plug bay assigned SCSI ID 0. The backplane assigns SCSI IDs to the other drives in order up to SCSI ID 5 at the far right side of the hot-plug bay.

Important

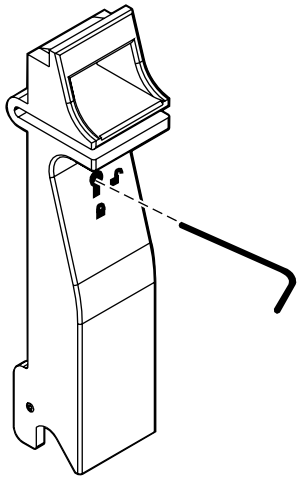
Gateway tests and verifies the operation and compatibility of the drives we sell. Additional or replacement drives must conform to Gateway standards, especially in a RAID or mission-critical environment.



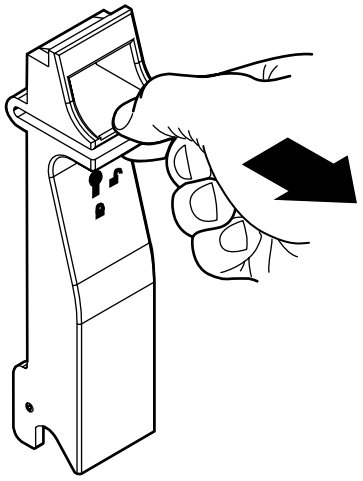
Install drive in the left-most drive bay first and in increasing order by SCSI ID number thereafter.

To replace a failed drive:

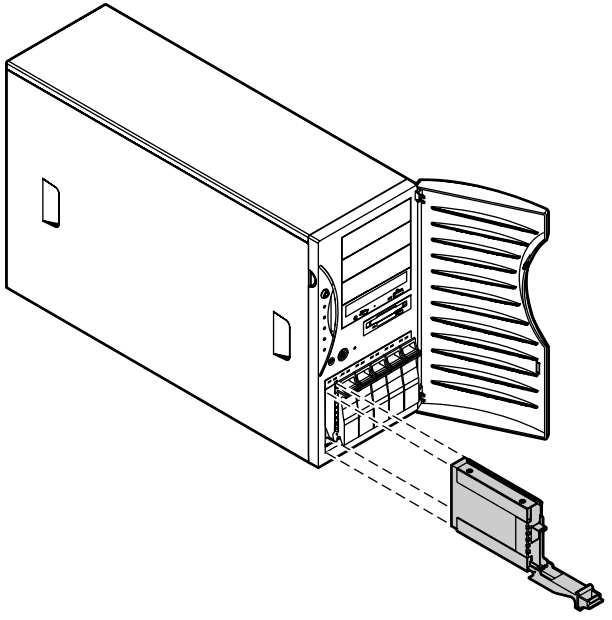
1. Before you remove the failed drive, use the appropriate software and utilities installed on the system to stop all activity on the failed drive. Instructions for using the software are provided by the software manufacturer.
2. Use the utilities to determine which drive needs to be replaced.
3. If the drive carrier is locked, use the hex key to unlock the carrier. Locked drive carriers show a red flag in the slot on the carrier handle.



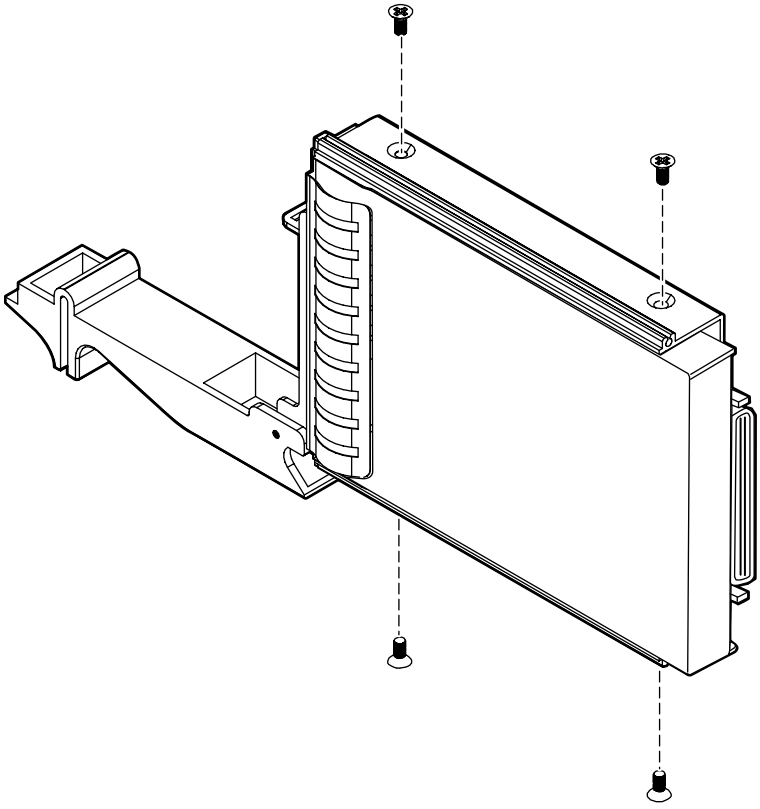
4. Remove the drive from the drive bay by pressing down on the carrier handle and rotating the handle out and down from the front of the server.



5 Continue pulling outward until the drive is entirely out of the system.



6 Remove the four screws that secure the drive to the carrier, then remove the drive.



7 Install the new drive in the carrier using the four screws you removed in Step 6.

8 Align the drive rails with the slots at the top and bottom of the drive bay. Leave the handle in the down position.

9 Push the drive all of the way into the drive bay until the handle starts to close because of contact with the front of the chassis. Make sure the hooks on the bottom of the handle latch over the edge of the drive bay and firmly close the handle.

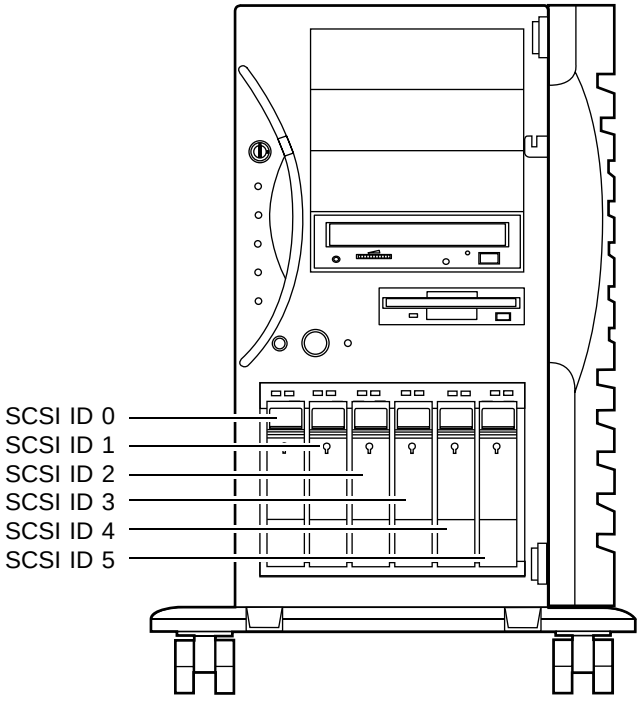
10 Lock the drive carrier with the hex key.

11 Run any necessary utilities to inform the system that the new drive is installed and ready for use. See the utility software documentation for details.

Adding a hot-plug drive

The hot-plug drives are located at the bottom of the front panel. The hot-plug bay supports up to six 1-inch high 3.5-inch SCA LVD SCSI hard drives.

The hot-plug drives are assigned SCSI ID numbers by the hot-plug backplane with the drive at the far left side of the hot-plug bay assigned SCSI ID 0. The backplane assigns SCSI IDs to the other drives in order up to SCSI ID 5 at the far right side of the hot-plug bay.



Install drive in the left-most drive bay first and in increasing order by SCSI ID number thereafter.

Removing an empty drive carrier

If the system ships with less than six drives installed, the empty drive bays contain drive carriers. To remove a drive carrier, follow the instructions to remove a drive in “Replacing a hot-plug drive” on page 37.

Purchase additional SCSI drives through your Gateway sales representative. Specify the system into which you will install the drive to ensure that the correct drive is delivered.

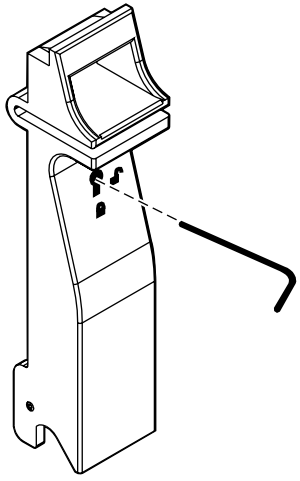
Important

Gateway tests and verifies the operation and compatibility of the drives we sell. Additional or replacement drives must conform to Gateway standards, especially in a RAID or mission-critical environment.

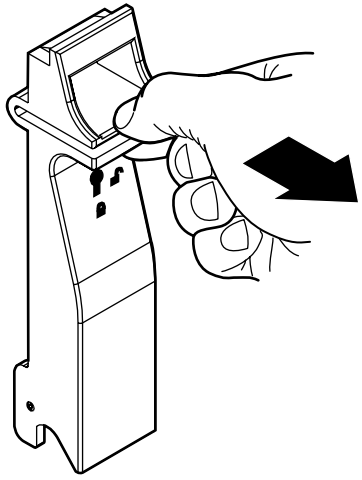
If you need to replace an empty drive carrier in the system, make sure it slides straight into place until the plastic handle begins to move upward, then close the handle.

To remove an empty drive carrier:

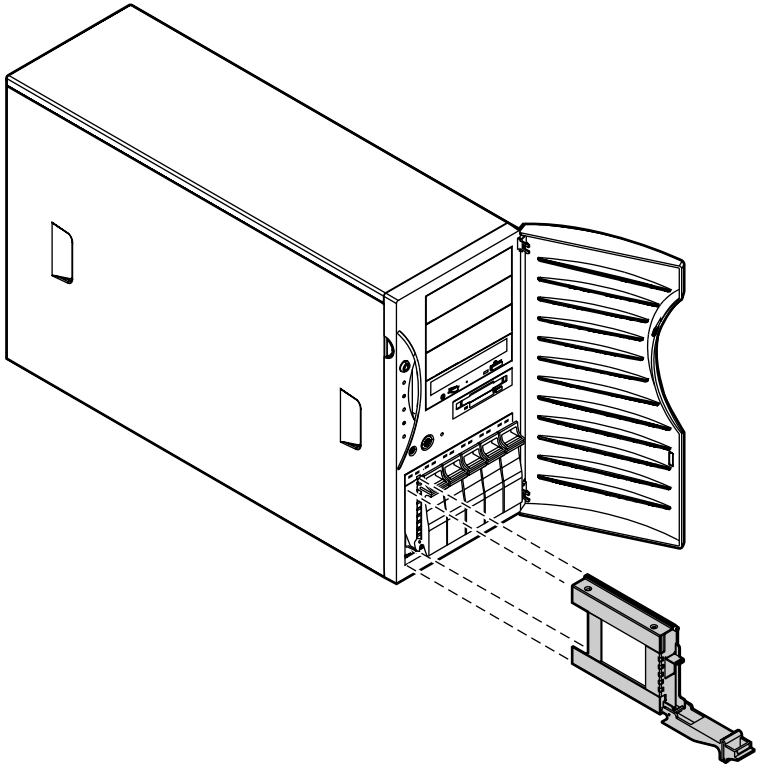
1. If the drive carrier is locked, use the hex key to unlock the carrier. Locked drive carriers show a red flag in the slot on the carrier handle.



2. Remove the drive carrier from the drive bay by pressing down on the carrier handle and rotating the handle out and down from the front of the server.



3 Continue pulling outward until the drive carrier is entirely out of the system.

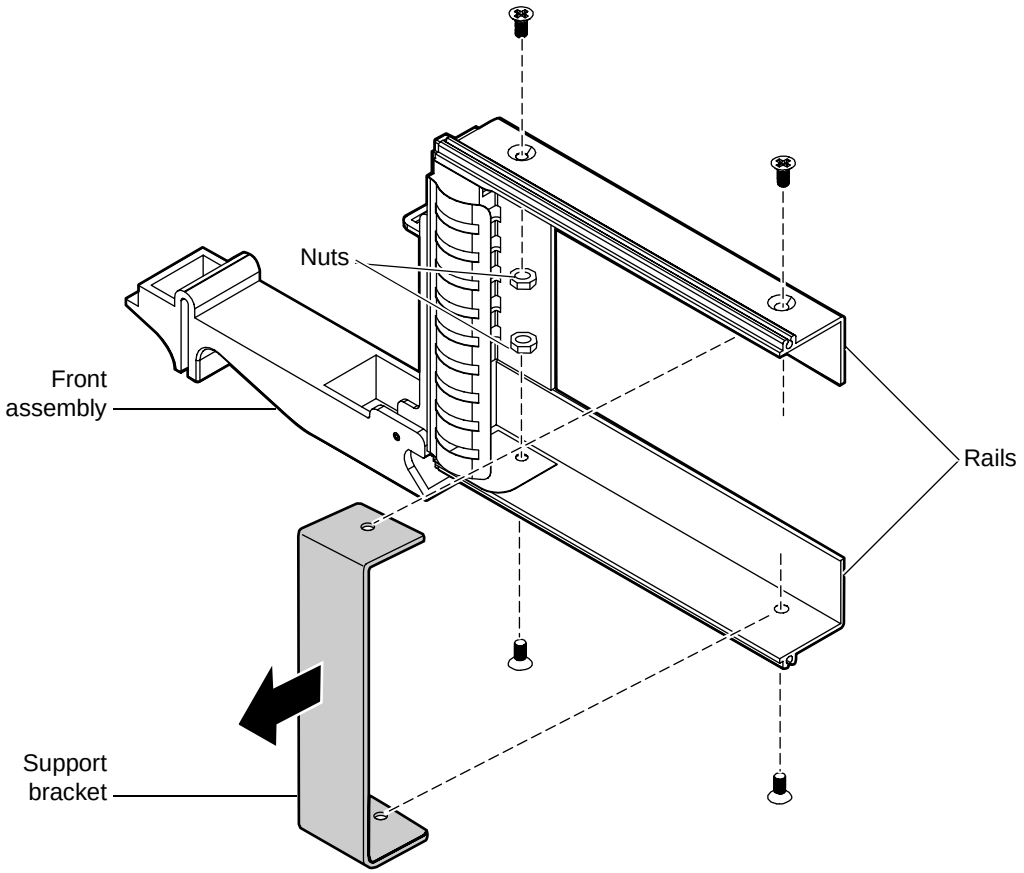


Installing a SCSI drive in the server

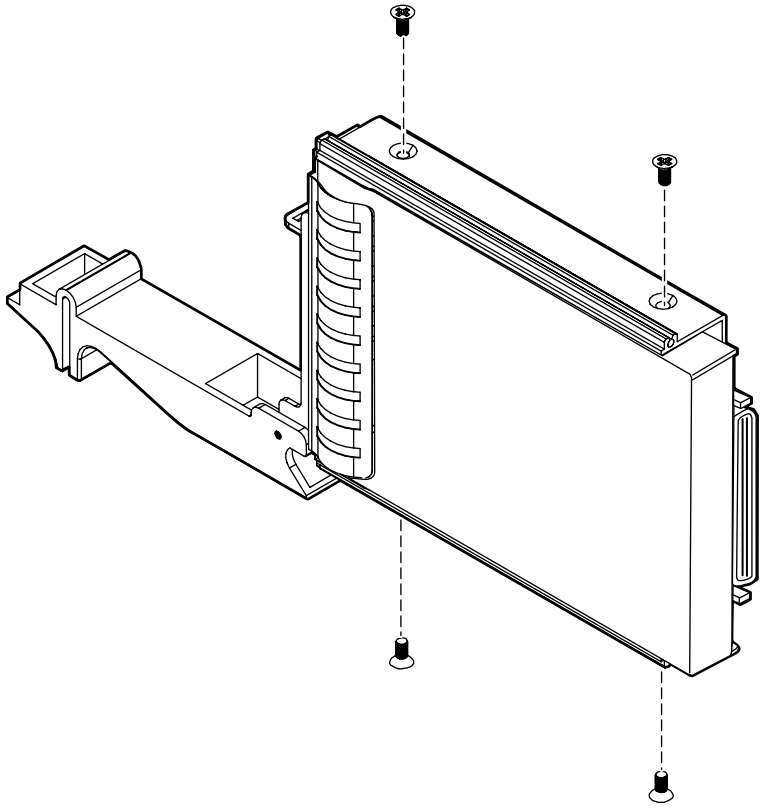
You do not need to configure individual drives before you install them in the server.

To install a SCSI drive in the server:

1. Remove the empty drive carrier as described in “Removing an empty drive carrier” on page 42.
2. Remove the four screws that secure the support bracket and front assembly to the rails. The two screws that secure the front assembly are threaded through small nuts. The nuts are not used when you install a drive.

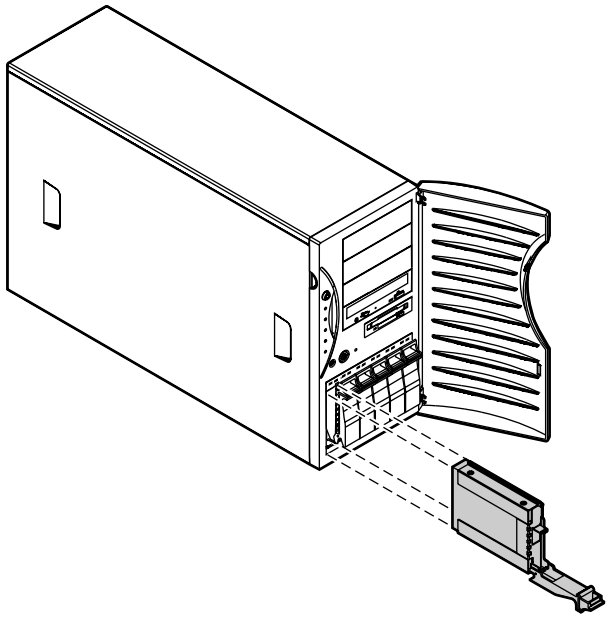


3 Install the drive into the carrier using the four screws you removed in Step 2.



4 Align the drive rails with the slots at the top and bottom of the drive bay.

5 Leave the handle down and push the drive all of the way into the drive bay until the handle begins to close because of contact with the front edge of the server.



6 Make sure the hooks on the bottom of the handle latch over the edge of the drive bay, then firmly close the handle.

7 Secure the drive by locking the drive carrier with the hex key.

Replacing the CD drive

The CD drive is located in one of the 5.25-inch drive bays at the top of the drive stack in the front of the chassis.

To replace the CD drive:

1 Turn off the system and disconnect the power cord and all other external peripheral devices.

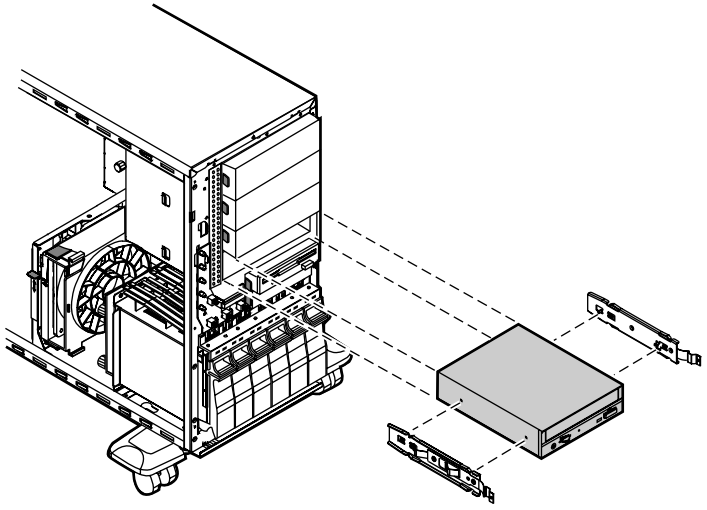
2 Open the case. (See “Opening the case” on page 23 and “Preventing static electricity discharge” on page 22.)

3 Locate the 5.25-inch CD drive.

4 Remove the power and data cables from the back of the drive, noting their locations and orientations. (You will reconnect these cables after you install the new drive.)

5 Disengage the rail locking tabs by pressing in on both front rail extensions, then move the drive slightly out of the bay by pushing on the back of the drive.

6 Pull the drive out of the chassis.



7 Remove the rails on both sides of the drive and snap them onto the new drive in the same positions. The rails are labeled. Make sure the front rail extensions are towards the front of the drive.

Important

The rails on the CD drive are different from those on the 3.5-inch drives. Make sure you install the correct rails on the CD drive.

8 Align the rails with the open bay, then slide the drive into the bay until the locking tabs snap into place.

9 Connect the power and data cables, making sure the cables are in their original positions. (See your drive documentation for proper cable orientation.)

10 Close the case. (See “Closing the case” on page 27.)

11 Reconnect the power cord and all other external peripheral devices, then turn on the system.

Adding additional 5.25-inch devices

You can use the three additional, externally accessible 5.25-inch drive bays to install additional 5.25-inch devices such as a CD writer or a tape backup drive. Use the rails from the existing filler trays to install new drives. You may need to purchase an additional cable of sufficient length to connect the existing devices and the new device to the connector on the system board.

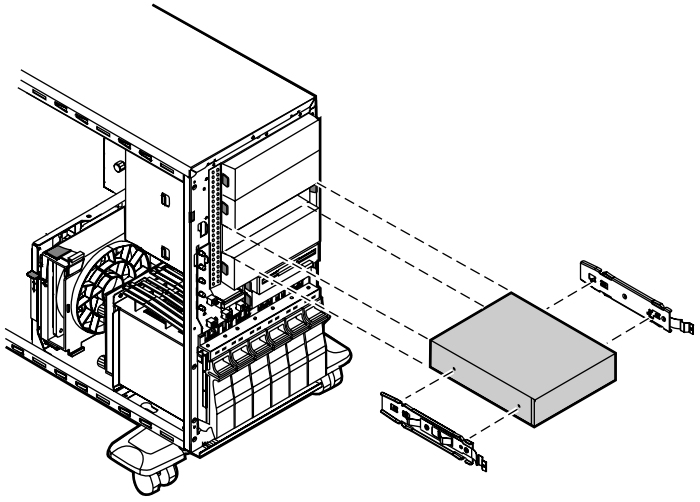
To install an additional 5.25-inch device:

1. Turn off the system and disconnect the power cord and all other external peripheral devices.
2. Open the case. (See "Opening the case" on page 23 and "Preventing static electricity discharge" on page 22.)
3. Remove the filler tray from the front of the drive bay, by pressing in on both front rail extensions, then move the tray slightly out of the bay by pushing on the back of the tray.

Caution

The server was designed to adhere to electromagnetic interference requirements and the tray is an integral part of the system. Installing an approved device should continue to maintain those standards. If you remove the device you must reinstall the tray.

4. Snap the rails onto the drive, making sure the front rail extensions are towards the front of the device. The rails are labeled.
5. Align the rails with the bay, and slide the drive into the chassis until the locking tabs snap into place.



6 Connect the power and data cables, making sure the cables are in their original positions. (See the drive documentation for proper cable orientations.)

7 Close the case. (See “Closing the case” on page 27.)

8 Reconnect the power cord and all other external peripheral devices, then turn on the system.

9 Run the configuration software, if required.

Memory

Four DIMM sockets on the system board support up to 2.0 Gigabytes (GB) of PC/100 SDRAM.

Replacing memory

The DRAM DIMMs supported by the system board conform to the following standards:

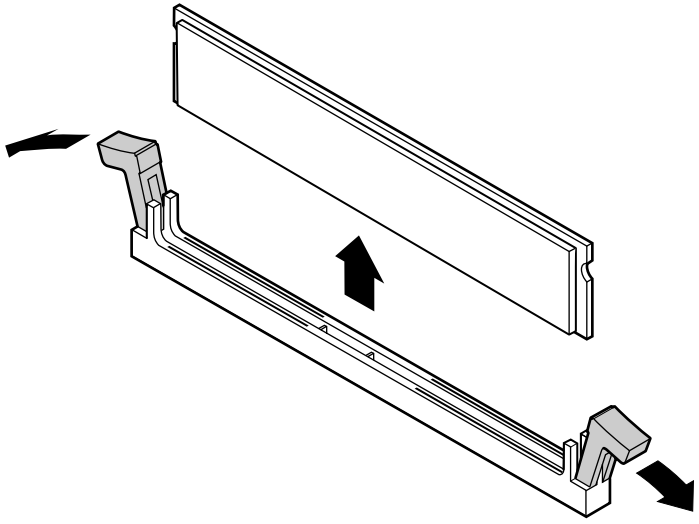
- 64 MB, 128 MB, 256 MB, and 512 MB ECC DIMMs
- PC/100-compliant, unbuffered, ECC SDRAM
- 64 MB minimum system memory
- 2.0 GB maximum system memory

When you select and install DIMMs, keep the following in mind:

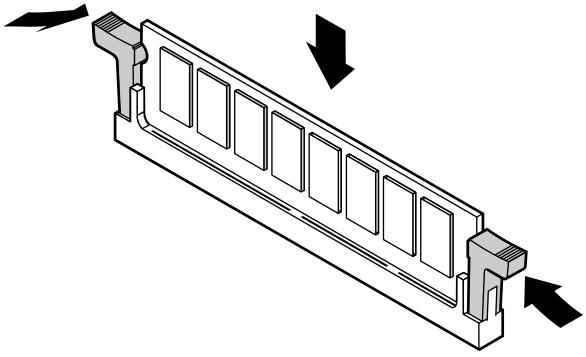
- Registered DIMMs should not be combined with unbuffered DIMMs
- Memory should be added in order, from DIMM 1 to DIMM 4.
- There can be no empty slots between installed DIMMs.
- No jumper settings are required for the memory size or type because the BIOS automatically detects this information.

To replace DIMMs:

1. Turn off the system and disconnect the power cord and all other external peripheral devices.
2. Open the case. (See “Opening the case” on page 23 and “Preventing static electricity discharge” on page 22.)
3. Pull open the socket clamps on each side of the DIMM socket, then lift the DIMM out of the socket. Store the DIMM in an anti-static container.



4 Insert the new DIMM into the socket and align the two notches in the DIMM with the two notches in the DIMM socket.



5 Gently press the DIMM into the socket until it is firmly seated. Inserting the DIMM automatically locks the socket clamps on each end of the DIMM.

6 Close the case. (See “Closing the case” on page 27.)

7 Reconnect the peripherals and the power cord, then turn on the system.

Adding memory

The DRAM DIMMs supported by the server board conform to the following standards:

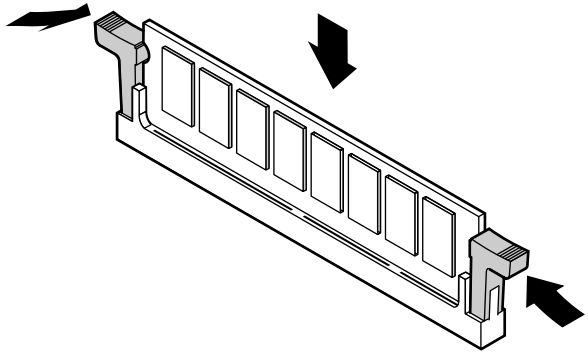
- 64 MB, 128 MB, 256 MB, and 512 MB ECC DIMMs
- PC/100-compliant, unbuffered, ECC SDRAM
- 64 MB minimum system memory
- 2.0 GB maximum system memory

When you select and install DIMMs, keep the following in mind:

- Registered DIMMs should not be combined with unbuffered DIMMs
- Memory should be added in order, from DIMM 1 to DIMM 4.
- There can be no empty slots between installed DIMMs.
- No jumper settings are required for the memory size or type because the BIOS automatically detects this information.

To add DIMMs:

1. Turn off the system and disconnect the power cord and all other external peripheral devices.
2. Open the case. (See "Opening the case" on page 23 and "Preventing static electricity discharge" on page 22.)
3. Pull open the socket clamps on each side of the DIMM socket.
4. Insert the new DIMM into the socket and align the two notches in the DIMM with the two notches in the DIMM socket.



5 Gently press the DIMM into the socket until it is firmly seated. Inserting the DIMM automatically locks the socket clamps on each end of the DIMM.

6 Close the case. (See “Closing the case” on page 27.)

7 Reconnect the peripherals and the power cord, then turn on the system.

Processors

The system is compatible with the Intel® Pentium® III 600 MHz and faster processors with 100 MHz front-side bus (FSB). As many as two processors may be installed in the system. The voltage regulator modules for both processors are built into the system board and you do not need to install additional VRMs.

Replacing a processor

When replacing a processor, order a processor upgrade kit from Gateway. The kit includes the processor, a fansink or heatsink, and a disposable grounding wrist strap.

Caution

A heatsink or fansink must be installed on each processor. Installing a processor without a heatsink or fansink could result in damage to, or failure of, the processor.

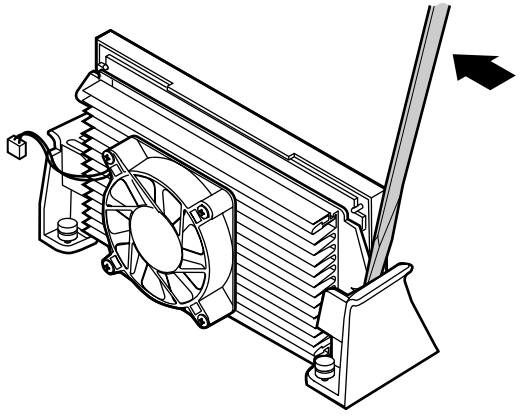
To replace a processor:

1 Turn off the system and disconnect the power cord and all external peripheral devices.

2 Open the case by following the instructions on page 23. (See “Preventing static electricity discharge” on page 22.)

3 Disconnect the processor fan cable from the processor fan connector on the system board.

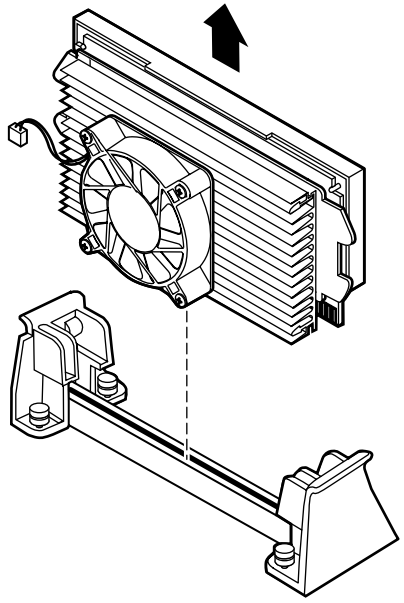
4 Place the head of a flat-bladed screwdriver behind the tab on one side of the processor retention bracket holding the processor to be removed.



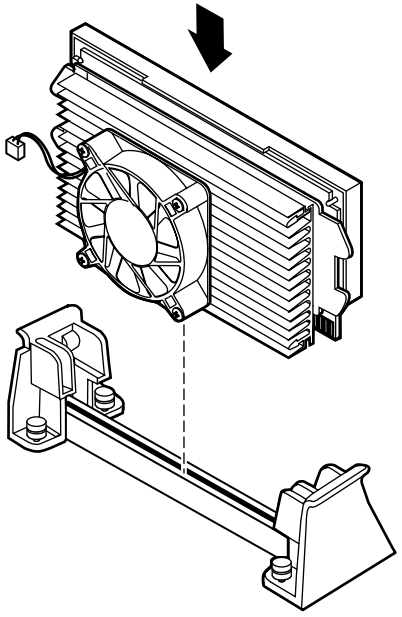
5 Push the handle of the screwdriver toward the processor. When the tab that locks the processor in place opens, lift up slightly on the side of the processor.

6 Repeat the previous two steps for the other side of the processor.

7 Pull the processor up and out of the slot.



8 Align the new processor with the processor slot (note that the processor slot is keyed so the processor can only be installed one way) and press firmly to install it.



9 Reconnect the processor fan cable to the processor fan connector on the system board.

10 Close the case. (See “Closing the case” on page 27.)

11 Reconnect the power cord and all other cords you removed, then turn on the system.

Important

Gateway recommends that you run a processor retest from the BIOS Setup utility whenever you replace or add a processor.

Adding a processor

The system is compatible with the Intel® Pentium® III 600 MHz and faster processors with 100 MHz front-side bus (FSB). As many as two processors may be installed in the system. The second processor must match the first processor in speed or the system functions at the speed of the slowest processor.

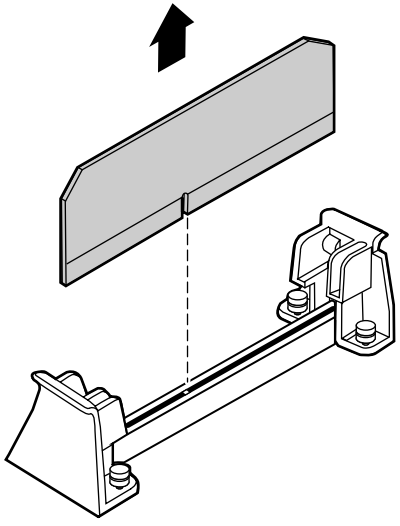
When adding a second processor order a processor upgrade kit from Gateway. The kit includes the processor, a fansink or heatsink, and a disposable grounding wrist strap.

Caution

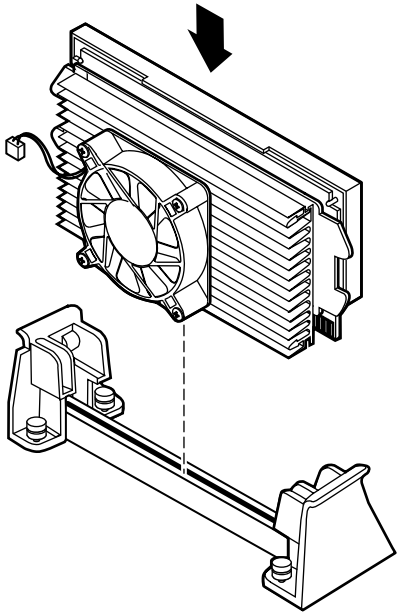
You must install a heatsink or fansink on each processor. Installing a processor without a heatsink or fansink could result in damage to, or failure of, the processor.

To add a second processor:

1. Turn off the system and disconnect the power cord and all external peripheral devices.
2. Open the case. (See "Opening the case" on page 23 and "Preventing static electricity discharge" on page 22.)
3. Remove the terminator card from the second processor slot to make room for the additional processor.



4 Align the new processor with the processor slot. Note that the processor slot is keyed so the processor can only be installed one way. Press it firmly to install it.



5 Connect the processor fan cable to the second processor fan connector on the system board (See “System board” on page 8 for location).

6 Close the case. (See “Closing the case” on page 27.)

7 Reconnect the power cord and all other cords you removed, then turn on the system.

Important

Gateway recommends that you run a processor retest from the BIOS Setup utility whenever you replace or add a processor.

Replacing the battery

The battery provides power for the system real-time clock and CMOS memory, which holds the system configuration information.

If your battery is failing you may notice the server clock slowing down and giving you the incorrect time.

Open the BIOS Setup utility and write down all the values in the various menus before replacing the battery. Replacing the battery resets the BIOS Setup utility to its default values.

Warning

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by manufacturer.

Dispose of used batteries according to manufacturer's instructions.

Warnung

Explosionsgefahr bel falsch eingebautter batterie.

Ersetzen der batterien nur mit batterien des gleichen typs oder mit batterien vom hersteller empfohlenen typs.

Entsorgen gebrauchter batterien entsprechned herstellerangaben.

Attention

Il y a danger d'explosion s'il y a replacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

To replace the battery:

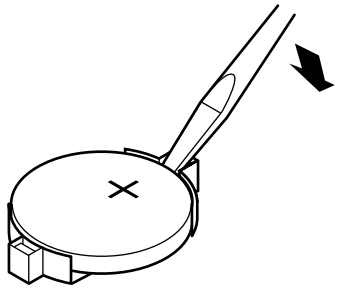
1. Restart the computer and start the BIOS Setup utility.
2. Write down the CMOS values from each tab in the BIOS Setup utility so you can reenter them after you replace the battery. For more information about the BIOS Setup utility, see "About the BIOS Setup utility" on page 83.

3 Turn off the computer, disconnect the power cord and all external peripheral devices.

4 Open the case by following the instructions on page 23. (See "Preventing static electricity discharge" on page 22.)

5 Locate the battery on the system board (see "System board" on page 8). The battery is circular and has the positive pole mark (+) on the top.

6 Using a small, flat-bladed screwdriver, carefully remove the battery from its socket on the system board.



7 Press the new battery in the socket with the positive pole up. Be sure you have pressed the battery down far enough for it to contact the base of the socket (it should snap into place).

8 Close the case, as described in "Closing the case" on page 27.

9 Reconnect the peripherals and the power cord, then turn on the system.

10 If the CMOS data is not correct, change the information in the BIOS Setup utility using the data you recorded in Step 2.

Troubleshooting the battery installation

If you have problems after installing the new battery, try each of the items listed below, restarting the computer after each try.

- Turn off the computer and make sure that all exterior cables are attached and secured to the correct connectors.
- Make sure that all power switches are on. If the computer is plugged into a power strip or surge protector, make sure it is turned on also.
- Enter the BIOS Setup utility and compare the settings on the screen with your notes or the system hardware manuals. Correct any discrepancies.

- Turn off the computer, remove the cover, and make sure that all cables inside the case are attached securely. Also, make sure that the colored cable edges are aligned correctly and that the connectors did not miss any pins. Disconnect and reconnect the cables. Close the case as described in “Closing the case” on page 27, reconnect the modem and power cords, then turn on the computer.
- Turn off the computer, remove the cover and, if you have the proper test equipment, make sure that the new battery has power. (Although unlikely, your new battery may be defective.) Close the case as described in “Closing the case” on page 27, reconnect the power cord, then turn on the computer.

Expansion cards

The server has seven expansion slots on the system board that may be used for a variety of expansion cards. Four slots support 32-bit, 33 MHz PCI cards, two slots support 32-bit, 66 MHz PCI cards, and one slot supports an ISA card. All slots support the installation of full-length cards.

Replacing an expansion card

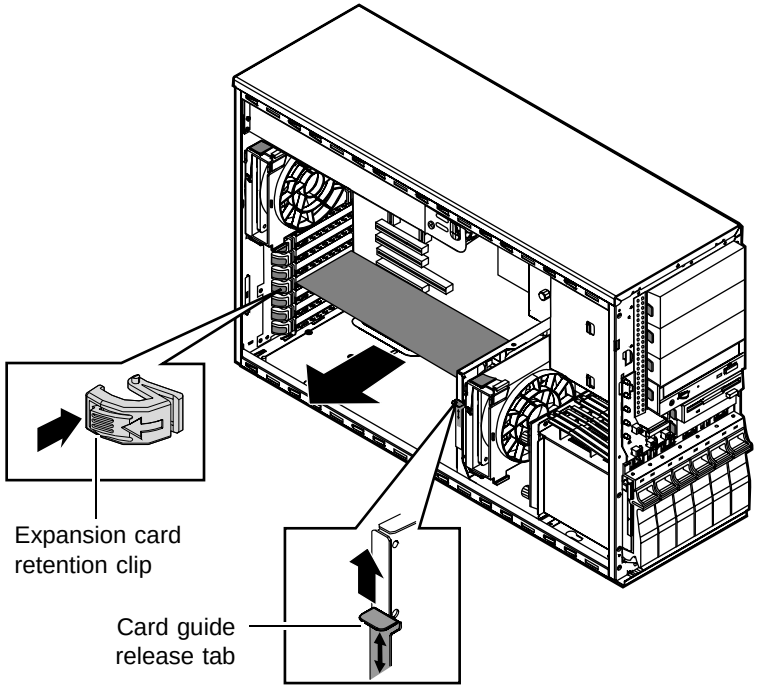
To replace an expansion card:

1. Set any jumpers and switches on the replacement card, if required in the card instructions.
2. Turn off the computer, disconnect the power cord and all external peripheral devices.
3. Open the case. (See "Opening the case" on page 23 and "Preventing static electricity discharge" on page 22.)
4. Disconnect any cables attached to the card.
5. Remove the existing card by pressing gently on the expansion card retention clip and sliding the retention clip back through the back panel and pressing upwards on the card guide release tab (for full-length expansion cards).

Important

The card guide release tab is held in place during shipping by a cotter pin. Remove the cotter pin before moving the release tab. You can replace the cotter pin or leave it out.

6. Pull the card out of the slot.



7 Place the replacement card in the slot and press it firmly into the connector.

8 Once the card is securely placed, slide the card guide release tab down again (for full-length expansion cards) and press the expansion card retention clip through the back panel until it clicks into place to secure the card.

9 Connect any cables to the card (see card documentation for proper cable orientation).

10 Close the case. (See “Closing the case” on page 27.)

11 Reconnect the peripherals and the power cord, then turn on the system.

You may need to reconfigure the server after replacing an expansion card. You may also need to install upgrade software that came with the card. Check the card documentation for additional information.

Adding an expansion card

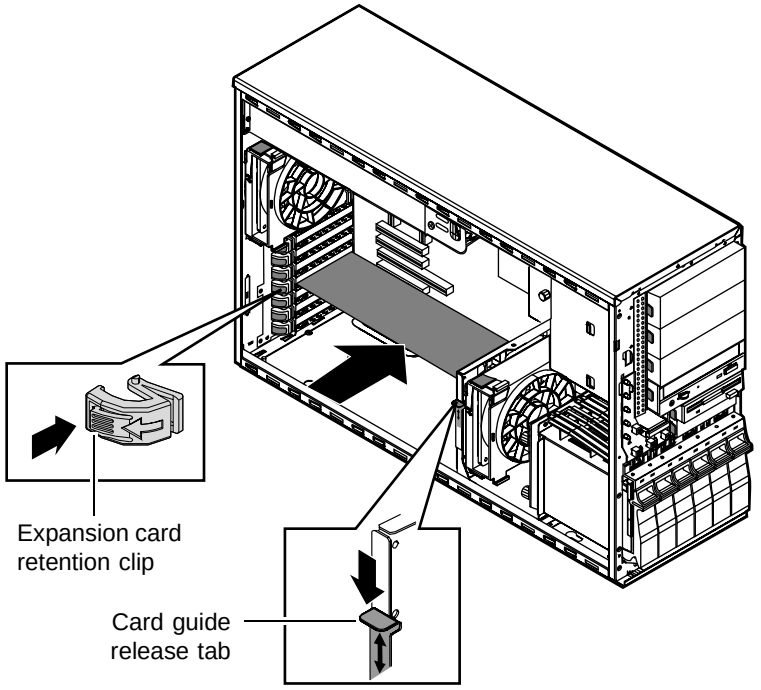
To add an expansion card:

1. Set any jumpers and switches on the card, if required in the card instructions.
2. Turn off the computer, disconnect the power cord and all external peripheral devices.
3. Open the case. (See “Opening the case” on page 23 and “Preventing static electricity discharge” on page 22.)
4. Locate an available slot and remove the slot cover by pressing the expansion card retention clip back through the back panel.
5. Pull out the slot cover.
6. Press the card guide release tab upward to release the cards and allow the new card to be inserted into the card guide (for full-length expansion cards).

Important

The card guide release tab is held in place during shipping by a cotter pin. Remove the cotter pin before moving the release tab. You can replace the cotter pin or leave it out.

7. Insert the bottom edge of the expansion card (the keyed edge with the contacts) into the slot on the system board and push in firmly to seat the card.



8. Once the card is securely placed, slide the card guide release tab down again (for full-length expansion cards) and press the expansion card retention clip through the back panel until it clicks into place to secure the card.
9. Connect any cables to the card (see card documentation for proper cable orientation).
10. Close the case. (See “Closing the case” on page 27.)
11. Reconnect the peripherals and the power cord, then turn on the system.

You may need to reconfigure the server after installing some expansion cards. You may also need to install software that came with the card. Check the card documentation for additional information.

Power supplies

The Gateway 7210 Server supports two power supplies. The basic model uses a single power supply of the same size and type as those used in most desktop PCs. The optional upgrade provides an N+1 redundant power supply that offers fault tolerance and hot-swap capability. This section describes replacing both power supplies and also describes the procedure for hot-swapping a power supply module in the N+1 redundant power supply.

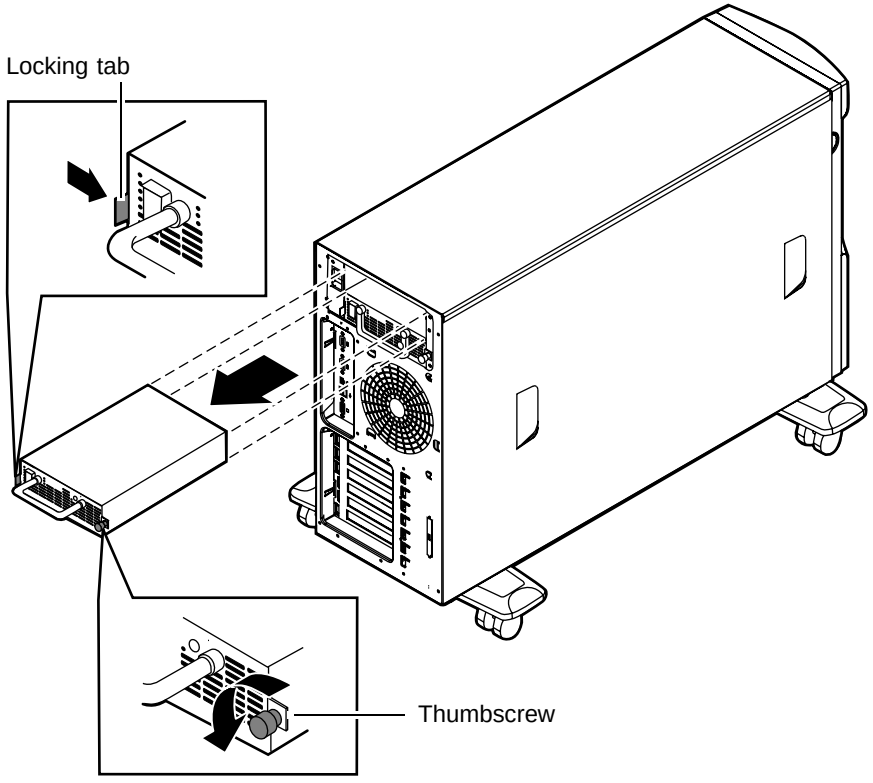
Replacing a redundant power supply module

The redundant power supply offers fault tolerance and hot-swap capabilities. If one of the two modules fails, the other module can support the system while the failed module is replaced. A failed module is indicated by an audible alarm and the corresponding power supply status LED will begin to flash. See “Front panel” on page 2 for the location and complete information on the function of the power supply status LEDs. You do not have to turn off the system to replace the failed module.

To replace a failed power supply module:

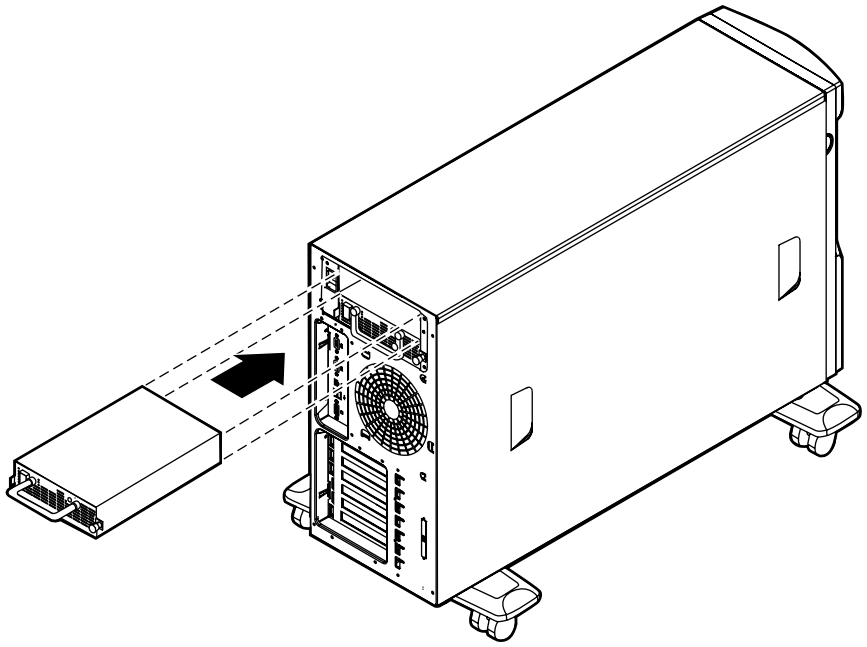
1. Determine which power supply module has failed. The module power LED turns off when the module fails.
2. Loosen the thumbscrew that secures the power supply module to the back panel.

3 Press the locking tab toward the center of the module while carefully pulling the failed module out of the power supply.



4 Carefully insert the new power supply module into the vacant slot, pressing firmly to seat the connector at the back.

5 Tighten the thumbscrew to secure the new module in position.



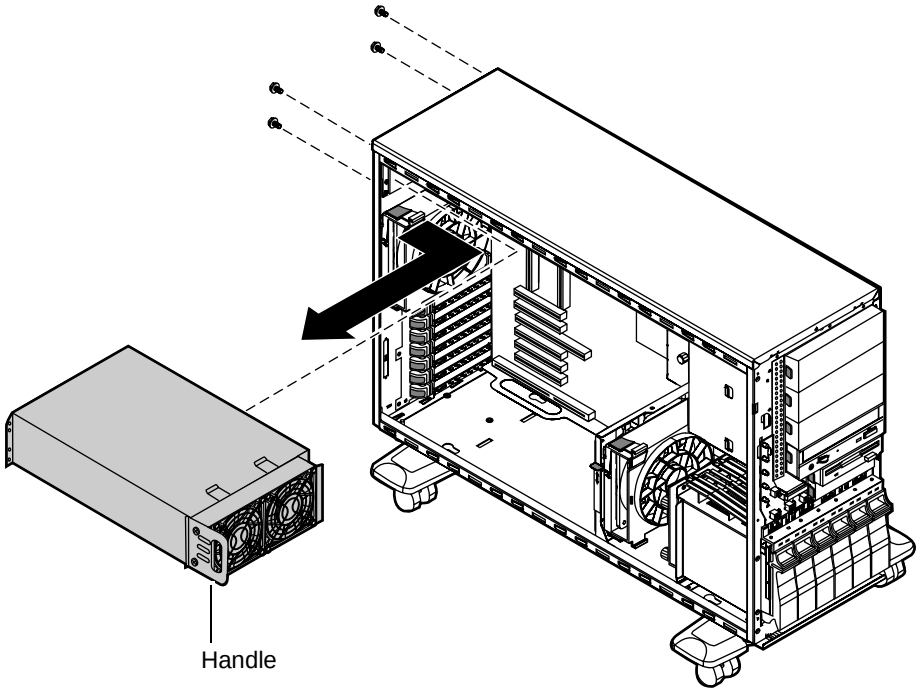
Replacing the redundant power supply

The redundant power supply offers fault tolerance and hot-swap capabilities. However, if the power distribution board at the base of the power supply or some other shared component fails, the entire power supply and its housing must be replaced. A failure of a shared component is indicated by both power supply status LEDs flashing and an audible alarm, or the system will fail to power up.

To replace the redundant power supply:

1. Turn off the system and disconnect the power cord and all peripherals.
2. Open the case. (See “Opening the case” on page 23 and “Preventing static electricity discharge” on page 22.)
3. Disconnect the power supply connectors from all internal devices, including the 3.5-inch diskette drive, the CD drive, and all hard drives.
4. Disconnect the main and auxiliary power supply signal connectors from the system board, by pressing on the tab to release the connector, then gently pull the connector from the board.

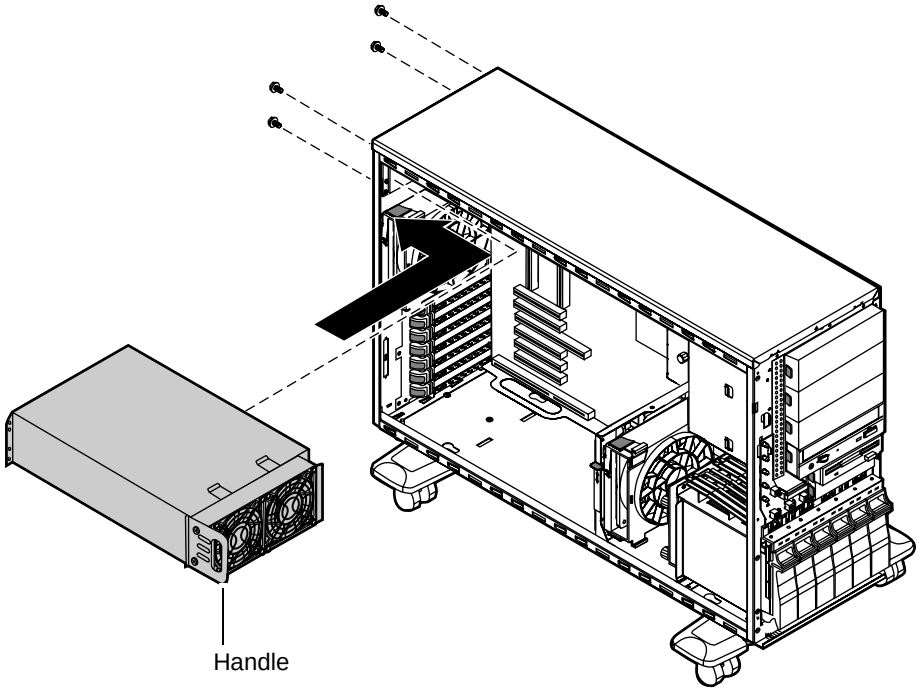
5 While supporting the power supply by the handle with one hand, remove the screws securing the power supply to the back panel.



6 Carefully lift the power supply out of the chassis using the handle attached to the power supply. Move the power supply forward to clear the support bracket, then tilt the left side of the power supply down to clear the side cover mounting rail as you pull it out.

7 Make sure that the new power supply matches the one you removed. The mounting holes should line up correctly, and the specifications and power output connectors should be the same.

8 Place the new power supply in the proper position in the chassis and line up the mounting holes with the holes in the chassis.



9 Replace the screws securing the power supply to the back panel.

10 Reconnect the power connectors to the system board and to all internal devices.

11 Close the case. (See “Closing the case” on page 27.)

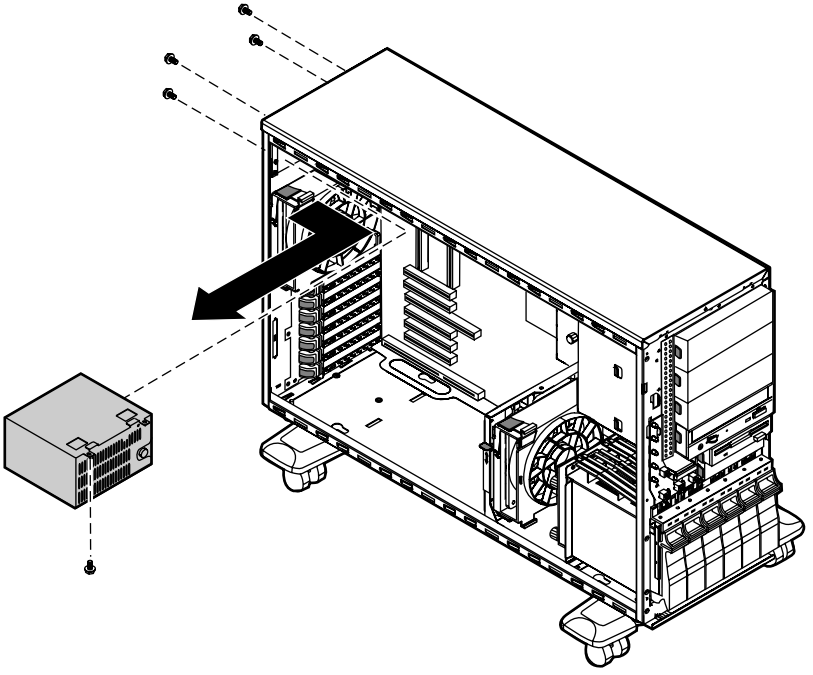
12 Reconnect the power cord and all external peripherals, then turn on the system.

Replacing the PS/2 power supply

The PS/2 power supply does not support fault tolerance or hot-swapping. If the power supply fails, you must replace it.

To replace the PS/2 power supply:

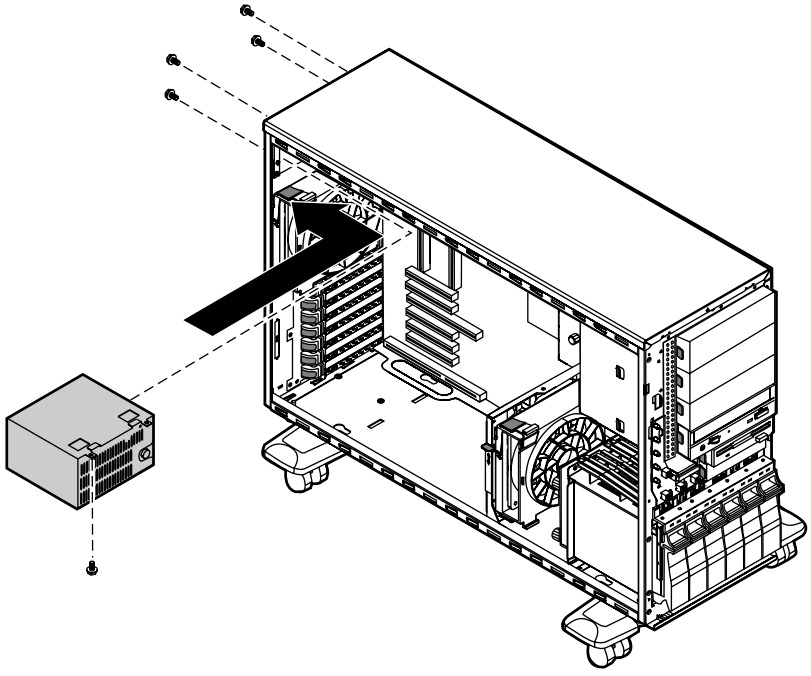
1. Turn off the system and disconnect the power cord and all peripherals.
2. Open the case. (See “Opening the case” on page 23 and “Preventing static electricity discharge” on page 22.)
3. Disconnect the power supply connectors from all internal devices, including the 3.5-inch diskette drive, the CD drive, and all hard drives.
4. Disconnect the main power supply connector to the system board, by pressing on the tab to release the connector, then gently pull the connector from the board.
5. While supporting the power supply with one hand, remove the screws securing the power supply to the back panel and the top panel.



6 Carefully lift the power supply out of the chassis, moving it forward to clear the support bracket and dropping it down slightly to clear the side mounting rail.

7 Make sure that the new power supply matches the one you removed. The mounting holes should line up correctly, and the specifications and power output connectors should be the same.

8 Place the new power supply in the proper position in the chassis and line up the mounting holes with the holes in the chassis.



9 Replace the screws securing the power supply to the back panel and top panel.

10 Reconnect the power connectors to the system board and to all internal devices.

11 Close the case. (See “Closing the case” on page 27.)

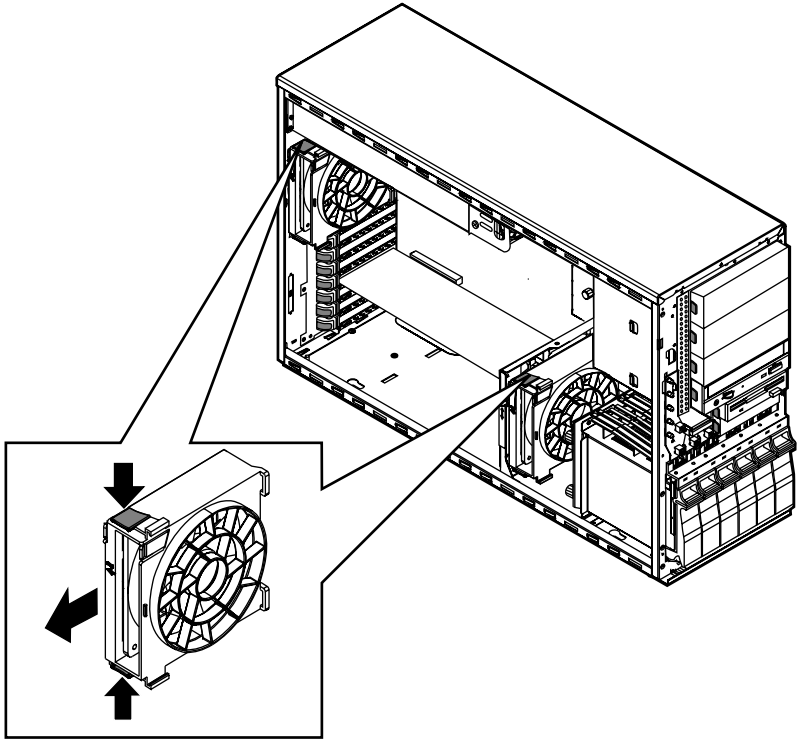
12 Reconnect the power cord and all external peripherals, then turn on the system.

Replacing the back panel and hot-plug cage fans

The back panel fan is located below the power supply on the back panel. The hot-plug cage fan is located behind the hot-plug cage, between the hot-plug cage and the system board. See the illustration on page 6 for more information.

To remove the back panel fan:

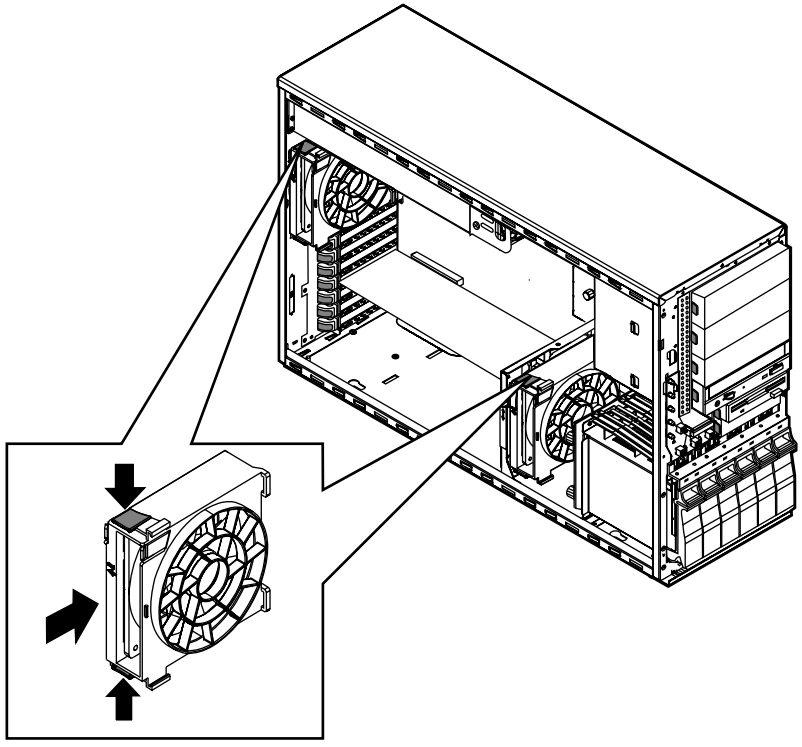
1. Turn off the system and disconnect the power cord and external peripherals.
2. Open the case. (See “Opening the case” on page 23 and “Preventing static electricity discharge” on page 22.)
3. Depress the two locking tabs on the fan bracket, then disengage the two retaining tabs from the back panel of the chassis.



4 Carefully remove the fan from the chassis.

5 Disconnect the fan power cable from the connector on the system board. Note the connector it was attached to.

6 Place the new fan bracket unit into the chassis by engaging the two retaining tabs with the tabs on the back panel of the chassis and the release tabs with the slots in the back panel.



7 Connect the fan power cable to the appropriate connector on the system board.

8 Close the case. (See “Closing the case” on page 27.)

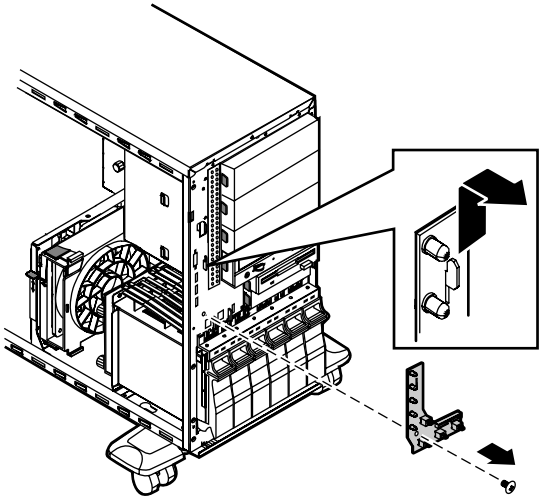
9 Reconnect the power cord and external peripherals, then turn on the system.

Replacing the control panel board

The control panel board is mounted on the front of the chassis, behind the front bezel.

To replace the control panel board:

1. Turn off the system and disconnect the power cord and all external peripherals.
2. Open the case. (See "Opening the case" on page 23 and "Preventing static electricity discharge" on page 22.)
3. Disconnect the front panel connector from the control panel board.
4. Remove the screw that secures the board to the front of the chassis.
5. Lift the control panel board off of the hooks on the front panel and remove it.



6. Install the new control panel board by placing the mounting slots of the control panel board on the tabs on the front of the chassis, then slide the board down until it locks into place. Be careful to keep the front panel cable out of the way as you install the board.
7. Replace the screw you removed in Step 4.

8 Plug the control panel cable into the connector on the control panel board.

9 Close the case. (See “Closing the case” on page 27.)

10 Reconnect the power cord and the external peripherals, then turn on the system.

Replacing the hot-plug backplane

The six drive hot-plug backplane is at the back of the hot-plug drive cage. The backplane supports as many as six hot-swappable LVD SCSI drives. The backplane provides activity LEDs for each drive. If the backplane fails, you must replace it.

To replace the hot-plug backplane:

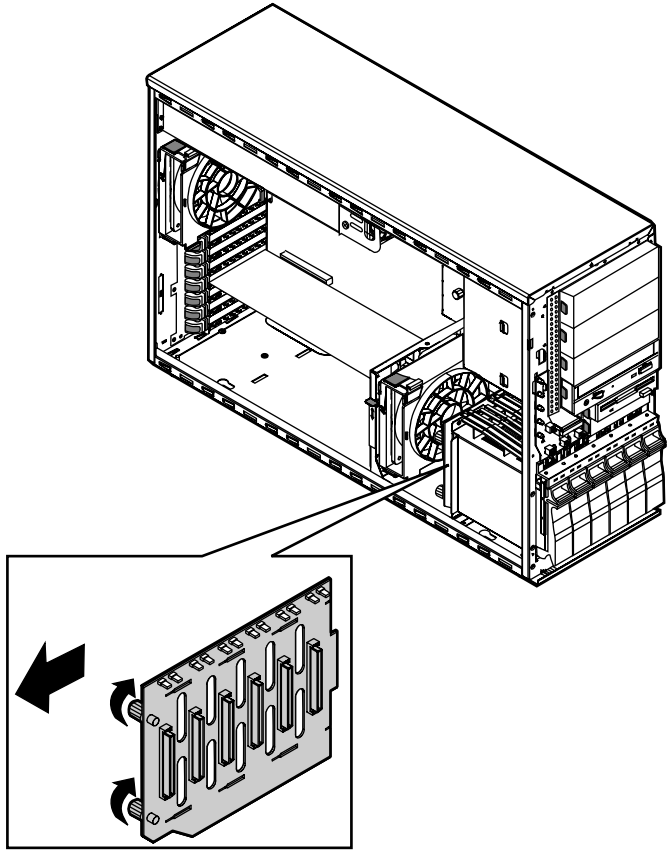
1 Turn off the system and disconnect the power cord and all external peripheral devices.

2 Open the case. (See “Opening the case” on page 23 and “Preventing static electricity discharge” on page 22.)

3 Disconnect all cables to the hot-plug backplane, noting the connectors so you can reconnect them after replacing the backplane.

4 Remove all hot-plug drives, being careful to note which drive was in which slot.

5 Loosen the two captive thumbscrews that secure the backplane in the bracket.

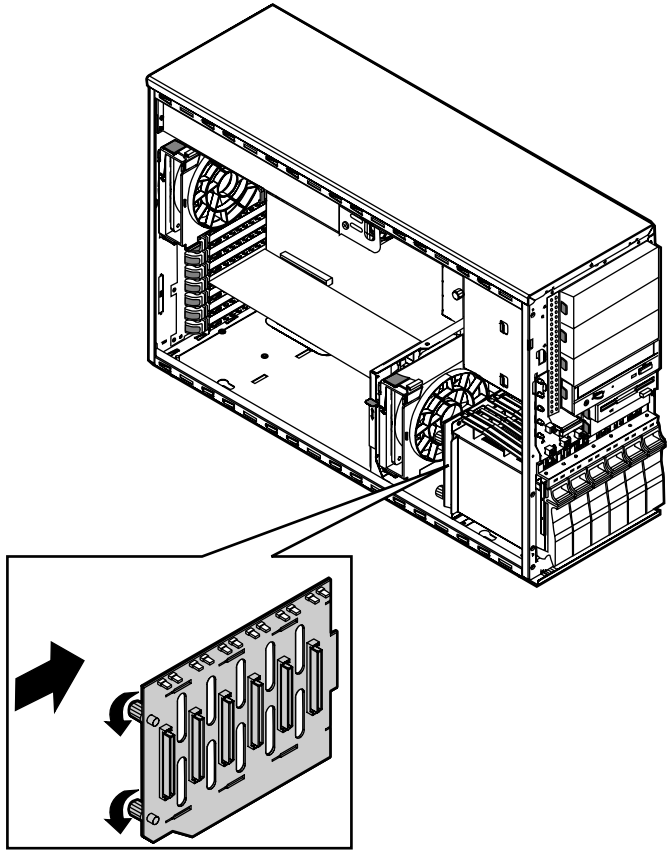


6 Pull the backplane out to the side of the chassis, then toward the back of the system to remove it from the retention hooks.

7 Lift the backplane out of the chassis.

8 Set any jumpers on the new backplane that are required for your SCSI configuration. (See “Hot-plug backplane” on page 11 for instructions.)

9 Place the backplane onto the hot-plug cage bracket, making sure the hooks on the bracket fit into the slots on the backplane.



10 When the backplane is securely in place, tighten the two captive thumbscrews.

11 Reconnect all cables on the backplane to the correct connectors.

12 Replace all hot-plug drives. Be careful to replace them in the same slots that they were in before you removed them.

13 Close the case. (See “Closing the case” on page 27.)

14 Reconnect all peripherals and the power cord, then turn on the system.

Replacing the system board

The system board is the heart of the computer, which integrates the other elements of the system, such as the processor, memory, storage, networking, and communications, and lets them operate in a coordinated and useful way.

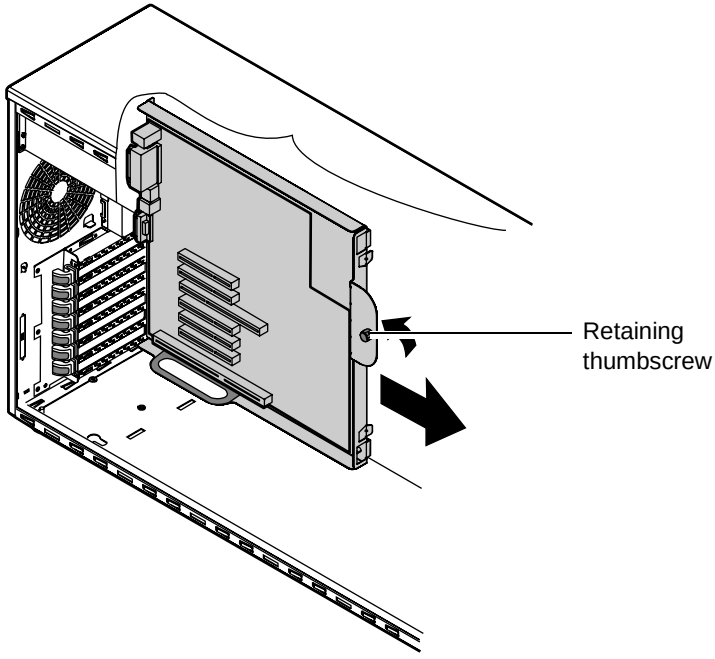
Important

All references to front, rear, left, or right on the computer are based on the computer being in a normal, upright position, as viewed from the front.

To replace the system board:

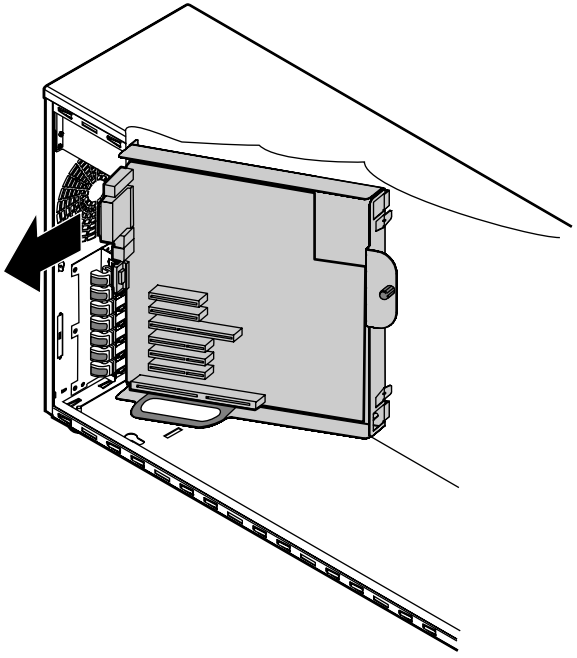
1. Turn off the system and disconnect the power cord and all external peripheral devices.
2. Open the case. (See "Opening the case" on page 23 and "Preventing static electricity discharge" on page 22.)
3. Place the chassis gently on its right side.
4. Remove all expansion cards from the system (see "Replacing an expansion card" on page 61.)
5. Remove the back panel fan (see "Replacing the back panel and hot-plug cage fans" on page 72.)
6. Disconnect all cables from the system board, including the power cables from the power supply. Note where the cables are connected.

7 Loosen the retaining thumbscrew securing the board support tray to the right side of the chassis.



8 Slide the board support tray toward the front of the chassis slightly to disengage it from the stand-off retention hooks.

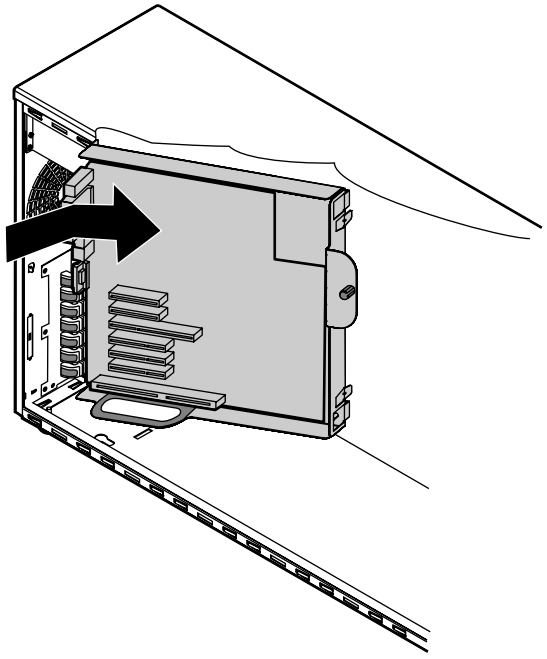
9 Using the handle at the bottom of the board support tray, pull the back edge of the system board (the edge against the back panel) out of the chassis.



10 Remove the system board from the support tray by removing the seven screws and snapping it off of the two snap-on standoffs, then place the board in an anti-static bag or container.

11 Install the replacement system board on the tray.

12 Holding the board support tray by the handles, place it in the chassis right edge first as shown in the illustration below. Arrange the cables carefully to prevent tangling as you install the board and tray assembly.



13 Holding the board support tray in place, tighten the retaining screw on the right edge of the board support tray.

14 Replace the back panel fan (see “Replacing the back panel and hot-plug cage fans” on page 72).

15 Replace any expansion cards that you removed in Step 4 (see “Replacing an expansion card” on page 61).

16 Reconnect all cables on the system board to the correct connectors.

17 Close the case. (See “Closing the case” on page 27.)

18 Reconnect all peripherals and the power cord, then turn on the system.

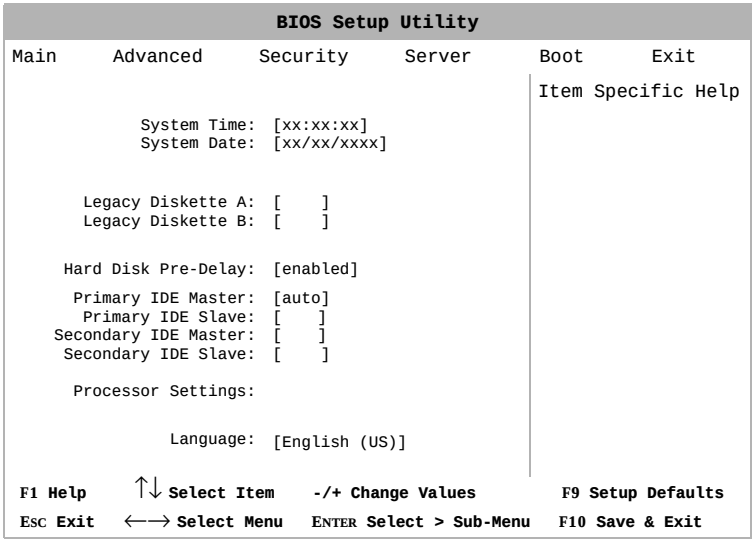
Using the BIOS Setup Utility

5

About the BIOS Setup utility

The server BIOS has a built-in setup utility that lets you configure several basic system characteristics. The settings are stored in battery-backed RAM and are retained even when the power is off.

Enter the BIOS Setup utility by restarting the computer, then pressing F2 when prompted during the startup process. The Main BIOS Setup utility screen opens. It may not look exactly like the screen shown below.


BIOS Setup Utility
Main Advanced Security Server Boot Exit
Item Specific Help
System Time: [xx:xx:xx]
System Date: [xx/xx/xxxx]
Legacy Diskette A: [ ]
Legacy Diskette B: [ ]
Hard Disk Pre-Delay: [enabled]
Primary IDE Master: [auto]
Primary IDE Slave: [ ]
Secondary IDE Master: [ ]
Secondary IDE Slave: [ ]
Processor Settings:
Language: [English (US)]
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ←→ Select Menu Enter Select > Sub-Menu F10 Save & Exit

As you select items on the Main menu or in submenus, you see specific information related to the current selection in the Item Specific Help box.

The command bar shows the keystrokes necessary to access help, navigate through the menus, and perform other functions.

- F1 opens the Help screen, providing general help for using the BIOS Setup utility.
- The ↑ (up arrow) and ↓ (down arrow) keys select items in the menu.
- The ← (left arrow) and → (right arrow) keys move you between the menus.
- ENTER either moves you to a submenu screen when a selected item is preceded by > or activates a selected field.
- ESC closes the screen you are in and returns you to the previous screen or exits you from the BIOS Setup utility.
- F9 opens a screen that lets you return all values to their default settings.
- F10 opens a screen that lets you save all settings, then exit the BIOS Setup utility.

The main screen has the following menu selections at the top of the screen:

- **Main** gives you access to basic information and settings related to your system hardware and configuration.
- **Advanced** gives you access to information and settings for system resources, hardware, and system configuration.
- **Security** gives you access to settings related to system access passwords.
- **Server** gives you access to information and options for server management features.
- **Boot** gives you access to information and settings for boot features and boot sequences.
- **Exit** gives you access to options for exiting the BIOS Setup utility.

Refer to the Help box on the right side of the BIOS Setup screens for information about menu items.

Updating the BIOS

If you need a new version of the BIOS, you can download the BIOS update from technical support on the Gateway Web site (www.gateway.com) and install the new version from a diskette.

To update the BIOS you need to perform the following tasks in sequence:

- Create a bootable diskette
- Note the current BIOS settings
- Create the BIOS update diskette
- Update the BIOS
- Restore the BIOS settings

Follow the detailed instructions for updating the BIOS that are included in the self-extracting file that you can download from the technical support area of Gateway's Web site.

Important

Whenever the BIOS is updated, the microcode table is returned to the default setting. To update the table to the proper settings for your processor, you must run the MULOADER.EXE program, which is available from the same site where you obtain the BIOS update files.

Setting the system board jumpers

The system board has three jumpers. Each of these jumpers has a specific function described in the sections below.

The CMOS Clear jumper

The CMOS Clear jumper on the system board (pins 1 through 3 of jumper J2J1) lets you clear all BIOS Setup settings. (See the figure on page 8 for the location of the jumper.)

The following table shows the settings required to perform this task. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Mode	Jumper Setting	Action When Set
CMOS protected	Pins 1-2	Normal operation (default)
Clear CMOS	Pins 2-3	Causes computer to clear all BIOS settings and return to defaults

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

Password Clear jumper

The Password Clear jumper on the system board (pins 5 through 7 of jumper J2J1) lets you clear the passwords. (See the figure on page 8 for the location of the jumper.)

The following table shows the settings required to perform this task. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Mode	Jumper Setting	Action When Set
Protect	Pins 5-6	Normal operation (default)
Clear	Pins 6-7	Clears all passwords at bootup

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

Recovery Boot jumper

The Recovery Boot jumper on the system board (pins 9 through 11 of jumper J2J1) lets you recover from a failed BIOS update by booting from diskette and loading the correct BIOS update if your BIOS code has become corrupted. (See the figure on page 8 for the location of the jumper.)

The following table shows the settings required to perform this task. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Mode	Jumper Setting	Action When Set
Normal boot	Pins 9-10	Normal boot from BIOS (default)
Recovery boot	Pins 10-11	Boot from diskette and correct the BIOS code

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

BIOS Boot Block Write Enable jumper

The BIOS Boot Block Write Enable jumper on the system board (pins 13 through 15 of jumper J2J1) lets you update the BIOS boot block. (See the figure on page 8 for the location of the jumper.)

Caution

Incorrect programming of the boot block may leave the system unbootable.

The following table shows the settings required to perform this function. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Mode	Jumper Setting	Action When Set
Normal	Pins 13-14	BIOS boot block is write protected (default)
BIOS update	Pins 14-15	Allows the BIOS boot block to be updated

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

BMC Boot Block Write Enable jumper

The BMC Boot Block Write Enable jumper on the system board (jumper J4J2) lets you program the BMC boot block using the correct utilities. You can download these utilities from the Gateway Web site along with the latest version of the BMC firmware. (See the figure on page 8 for the location of the jumper.)

Caution

Incorrect programming of the boot block may leave the system unbootable.

The following table shows the settings required to allow programming of the BMC boot block. Make sure you turn off the computer and unplug the power cord before moving the jumper..

Mode	Jumper Setting	Action When Set
Normal	Pins 1-2	BMC boot block is write protected (default)
Writes enabled	Pins 2-3	Allows BMC boot block to be programmed through the correct utilities.

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

FRB Enable jumper

The 7210 server supports fault resilient booting (FRB) which causes the second processor to take over the boot process if the first processor fails to respond within a specified time. The FRB Enable jumper on the system board (pins 1 through 3 on jumper J3J1) lets you enable FRB. (See the figure on page 8 for the location of the jumper.)

The following table shows the settings required to enable FRB. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Mode	Jumper Setting	Action When Set
Enable	Pins 1-2	FRB is enabled (default)
Disable	Pins 2-3	FRB is disabled

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

Intrusion Detection Enable jumper

The Intrusion Detection Enable jumper on the system board (pins 5 through 7 on jumper J3J1) lets you enable intrusion detection. (See the figure on page 8 for the location of the jumper.)

The following table shows the settings required to enable intrusion detection. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Mode	Jumper Setting	Action When Set
Enable	Pins 5-6	Intrusion detection is enabled (default)
Disable	Pins 6-7	Intrusion detection is disabled

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

BMC Firmware Update jumper

The BMC Firmware Update jumper on the system board (pins 9 through 11 on jumper J3J1) lets you update the BMC firmware during system boot. (See the figure on page 8 for the location of the jumper.)

The following table shows the settings required to let you update the BMC. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Mode	Jumper Setting	Action When Set
Normal	Pins 9-10	Normal boot (default)
Update BMC	Pins 10-11	System updates BMC

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

WOL Enable jumper

The WOL Enable jumper on the system board (jumper J5A2) lets you enable the wake-on-LAN feature. (See the figure on page 8 for the location of the jumper.)

The following table shows the settings required to perform this task. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Mode	Jumper Setting	Action When Set
Disabled	Pins 1-2	Disables wake-on-LAN
Enabled	Pins 2-3	Enables wake-on-LAN (default)

Caution

Moving the jumper while the power is on can damage the server. Always turn off the server and unplug the power cord before changing the jumper.

Managing the Server

6

Avoiding power source problems

Surge suppressors, line conditioners, and uninterruptible power supplies can help protect the server against power source problems.

Surge suppressors

During a power surge, the voltage level of electricity coming into the server can increase far above normal levels and cause data loss or system damage.

Protect you computer and peripherals by connecting them to a surge suppressor, which will absorb voltage surges and prevent them from reaching your computer.

When purchasing a surge suppressor:

- Make sure the surge suppressor meets the appropriate product safety certification for your location, such as Underwriters Laboratories (UL) or Conformite European (CE).
- Check the maximum amount of voltage the suppressor allows to pass through the line. The lower the voltage that the suppressor allows to pass through, the better the protection for the server.
- Check the energy absorption (or *dissipation*) rating. The higher the energy absorption rating, the better the protection for the server.
- Check line-conditioner capabilities. A line conditioner smooths out some normal line noise (small voltage fluctuations) of an electrical supply.

Line conditioners

A line conditioner protects the server from the small fluctuations in voltage from an electrical supply. Most systems can handle this variation (or *line noise*) without problems. However, some electrical sources include more line noise than normal. Line noise can also be a problem if the server is located near, or shares a circuit with, a device that causes electromagnetic interference, such as a television or a motor.

Some surge suppressors and uninterruptible power supplies include simple line-conditioning capabilities.

Uninterruptible power supplies

Use a standby uninterruptible power supply (UPS) to protect your computer from data loss during a total power failure. A UPS uses a battery to keep your computer running temporarily during a power failure and lets you save your work and shut down your computer. You cannot run your computer for an extended period of time while using only the UPS.

Maintain and manage your hard drive

Regular maintenance can keep your hard drive operating efficiently and good file management can keep the server free of unwanted files while making important files secure and easier to find.

Hard drive maintenance utility

If you are using the Windows NT operating system, you can help maintain the performance of your hard drive by regularly using Check Disk.

Important

For other operating systems, such as Windows 2000 or Novell Netware, refer to the appropriate operating system manual.

Using Check Disk in Windows NT

Bad sectors are parts of a hard drive or diskette that will not hold data. Check Disk checks the hard drive for bad sectors or lost allocation units and lets you fix them. A lost allocation unit is a group of sectors that has lost its place in the table that the operating system uses to locate files.

Use Check Disk from once a week to once a month, depending on how often you use the server. Also use Check Disk if you have any hard drive problems.

To use Check Disk:

1. Double-click the **My Computer** icon. The My Computer window opens.
2. Right-click the drive you want to check.
3. Select **Properties**. The drive's properties window opens.
4. Click the **Tools** tab.
5. At **Error-checking**, click **Check Now.** The Check Disk window opens.
6. Scan the entire hard drive by selecting **Scan for and attempt recovery of bad sectors**.
7. Click **Start.** Check Disk checks the drive for errors.
8. Follow any on-screen instructions for completing the scan.

Hard drive management practices

By deleting unneeded files from your hard drive and managing the space that is automatically allocated for saving certain files, you can help maintain the performance of the hard drive. We suggest that you first check your hard drive for available space, then back up important files prior to deleting unneeded files, in case you delete important files by mistake.

Checking hard drive space

In Windows, you can see a chart of the available hard drive space.

To check hard drive space:

1. Double-click on the **My Computer** icon on the desktop. The My Computer window opens.
2. Right-click the drive you want to check.
3. Select **Properties**. The drive's properties window opens. The **General** tab shows you the available and used space on the drive.

Backing up files

Regularly backing up your files protects you from losing data and lets you keep fewer files on your hard drive. Back up old files to a large capacity disk drive or tape drive and delete the files from your hard drive. You can use the software that came with your tape backup drive or your large capacity disk drive to back up the files.

You can also back up files by running the Backup utility that came with your operating system. In Windows NT, Backup copies files to a tape drive.

To run Backup in Windows NT:

1. Click **Start**, then select **Programs**, **Administrative Tools,** then **Backup**.
2. Follow the on-screen instructions.

Deleting unneeded files

By deleting unneeded files from the hard drive, you free up space on the hard drive and help improve hard-drive performance. The following sections give you some simple ways to delete unneeded files.

Deleting Windows temporary files

During normal operation, Windows constantly creates new temporary (.tmp) files. You can safely delete all but the most recent .tmp files.

To delete .tmp files:

1. Open Windows Explorer, then select **Tools**, **Find**, then **Files and Folders**.
2. In the **Named** text box, type ***.tmp**
3. In the **Look in** drop down list, select your drive letter.
4. Click **Find Now**. The list of .tmp files appears.
5. Click **Modified** above the list. To see the **Modified** button, you may need to maximize the Find window. The list is sorted by date.
6. Highlight all the files in the list except those with the current date.
7. Press SHIFT + DELETE. A dialog box opens asking if you want to delete the files.
8. Click **Yes**. The files are deleted.

Deleting temporary Internet files

As you visit Web sites, your browser stores temporary Internet files on your hard drive in a *memory cache* and a *disk cache*. Files in the memory cache are removed when you turn off your computer. Files are saved in the disk cache until the space designated for the cache is full. See your browser's Help files for instructions on emptying the disk cache.

You can save space on the hard drive by decreasing the size of the Internet file disk cache. See your browser's Help files for instructions.

Emptying the Recycle Bin

When you delete a file from your hard drive in Windows, it is not immediately removed from the hard drive. Instead, the file is moved into the Recycle Bin. Because files are stored in the Recycle Bin and not deleted from the hard drive immediately, you can retrieve a file that you accidentally delete from the hard drive.

To delete all the files from the Recycle Bin, right-click the **Recycle Bin** icon on the desktop, then click **Empty Recycle Bin**.

You can save space on the hard drive by decreasing the size of the Recycle Bin.

To decrease the size of the Recycle Bin:

1. Right-click the **Recycle Bin,** then select **Properties**.
2. At the Global tab, select either **Configure drives independently** or **Use one setting for all drives.**
3. If you are configuring drives independently, click the tab for the drive you want to configure.
4. Move the slider to set the size of the Recycle Bin. A good initial setting is 5%.
5. Click **OK**.

Protecting the server against viruses

A *virus* is a program that attaches itself to a program or data file on a computer, then spreads from one computer to another. Viruses can damage data, cause computers to malfunction, and can display annoying or offensive messages. Some viruses can go unnoticed for long periods of time because they are activated by a certain date or time. Protect your computer from viruses by:

- Using an anti-virus program to check files and programs that are on diskettes, attached to e-mail messages, or downloaded from the Internet. After you run the anti-virus program you can back up your files to diskettes, a separate hard drive, or a high-capacity storage drive.
- Keeping your anti-virus program updated.
- Obtaining all software from reputable sources and checking the software for viruses before installing it.
- Disabling macros on suspicious Microsoft Word and Excel files. These programs will warn you if a document that you are opening contains a macro that might have a virus.

To remove a virus:

1. Find and remove the virus immediately using Norton AntiVirus.
2. Turn off your computer and leave it off for at least 30 seconds.
3. Turn on the computer and rescan for the virus.
4. If the virus is still present, contact Gateway Client Care.

System administration and control

The server has three server-management tools included to enable administration and control of Windows NT environments. These tools are Intel® Server Control (ISC), ManageX Event Manager, and the Direct Platform Control (DPC) Console.

Intel Server Control (ISC)

Using a graphical user interface, ISC can locally or remotely provide real-time monitoring and alerting for server hardware sensors. ISC monitors and records system status indicators such as temperature, voltage, cooling, chassis intrusion, processor status, cooling fan status, and power supply status. You can establish a threshold or range of accepted values for each of these indicators and you can configure ISC to respond to variances in a number of ways, from an entry in the event log, to a displayed message or audio alarm, or even a complete server shutdown.

ISC also provides a system hardware inventory, SCSI controller status, LAN adapter status, and BIOS and system slot information.

You can find additional information about Intel Server Control under **Documentation** on the *7210 Companion CD* which came with the system.

ManageX Event Manager

ManageX lets the system administrator manage multiple systems on a Windows NT, Windows 2000, or Novell Netware network from a single window, and implement commands and policies across the network with a single action. With this tool you can automate system management tasks, which can be triggered by specific events or at specified thresholds.

You can find additional information about the ManageX Event Manager under **Documentation** on the *7210 Companion CD* which came with the system.

Direct Platform Control (DPC) Console

The Direct Platform Control (DPC) Console provides remote emergency management of servers. The DPC Console is independent of the server operating system and provides a means to remotely diagnose problems or verify the state of the server. It will also turn the server on or off.

You can find additional information about DPC Console under **Documentation** on the *7210 Companion CD* which came with the system.

System security

To help prevent unauthorized entry or use of the system, the system includes key locks on the chassis (to prevent entry) and the bezel door (to prevent use).

You can also set security measures in the BIOS Setup utility which establishes passwords and automatic system lockouts. The system also includes server management software that monitors the chassis intrusion switch.

Mechanical locks and monitoring

The system includes a chassis intrusion switch. When the access cover is opened, the switch transmits an alarm signal to the system board, where server management software processes the signal. You can program a response to an intrusion, for example, the system may power down or lock the keyboard.

Software locks through the BIOS Setup utility

The BIOS Setup utility provides several security features to prevent unauthorized or accidental access to the system. Once the security measures are enabled, access to the system is allowed only after you enter the correct password(s). For example, the utility lets you:

- Enable the keyboard lockout timer so the server requires a password to reactivate the keyboard and mouse after a specified time-out period of 1 to 120 minutes
- Set and enable administrator and user passwords
- Set secure mode to prevent keyboard or mouse input and to prevent use of the front panel reset and power switches
- Activate a hot-key combination to enter secure mode quickly
- Disable writing to the diskette drive when secure mode is set

Using passwords

If you set and enable a user password but not an administrator password, enter the user password to boot the system with limited BIOS Setup access.

If you set and enable both a user and an administrator password:

- Enter either one to boot the server and enable the keyboard and mouse
- Enter the administrator password to gain full access to the BIOS Setup to change the system configuration

Secure mode

Configure and enable the secure boot mode by using the BIOS Setup. When secure mode is in effect, you:

- Can boot the system and run the OS, but you must enter the user password to use the keyboard or mouse
- Cannot turn off system power or reset the system from the front panel switches

Taking the system out of secure mode does not change the state of system power. That is, if you press and release the power switch while secure mode is in effect, the system will not power off when secure mode is later removed. However, if the front panel power switch remains depressed when secure mode is removed, the system will power off.

Summary of software security features

The following table lists the software security features and describes what protection each offers. In general, to enable or set the features listed here, you must run the BIOS Setup utility and go to the Security Menu. The table also refers to other Setup utility menus. For more information on setting the security features, see "About the BIOS Setup utility" on page 83.

Feature	Description
Secure boot mode	To enter secure mode; set and enable a password to automatically put the system into secure mode. If you set a hot-key combination, you can secure the system by pressing the key combination. This means you do not have to wait for the inactivity time-out period. When the system is in secure mode; the system boots and runs the OS, but does not accept mouse or keyboard input until you enter the user password. At bootup, if the system detects a CD in the CD-ROM drive or a diskette in drive A, it requests a password. When you enter the password, the system boots from CD or diskette and disables secure mode. If you have not installed a CD-ROM drive or if there is no CD in the drive or diskette in drive A, the system boots from drive C and automatically enters secure mode. All enabled secure mode features go into effect at bootup. To leave secure mode; enter the correct password(s).
Disable writing to diskette	In secure mode, the system will not boot from or write to a diskette unless a password is entered. To set these features, see "About the BIOS Setup utility" on page 83.
Disable the power and reset buttons	If you enable this protection feature, the system disables the power and reset buttons when in secure mode.
Set a time-out period so that keyboard and mouse input are not accepted.	You can specify and enable an inactivity time-out period from 1 to 120 minutes. If no keyboard or mouse action occurs for the specified period, keyboard and mouse input is not accepted. To set this feature, see "About the BIOS Setup utility" on page 83.

Feature	Description
Control access to the BIOS Setup (set administrator password)	To control access to the system configuration, set an administrator password and enable it through Setup. If both the administrator and user passwords are enabled, either can be used to boot the system or enable the keyboard and/or mouse, but only the administrator password allows changes to Setup. Once set, passwords can be disabled by setting the password to a null string or by changing the Clear Password jumper. See “Password Clear jumper” on page 86.
Control access to the system other than BIOS Setup (set user password)	To control access to the system, set a user password and enable the Password on Boot option using the BIOS Setup utility. Once set, passwords can be disabled by deleting the password or by changing the Password Clear jumper. See “Password Clear jumper” on page 86.
Boot without keyboard	The system can boot with or without a keyboard. During POST and before the system boots, the BIOS automatically detects and tests the keyboard, if present, and displays a message. Do not plug in a keyboard while the system is on.
Specify the boot sequence	The sequence you specify in the BIOS (see “About the BIOS Setup utility” on page 83) determines the boot order. If secure mode is enabled (user password is set), you are prompted for a password before the system boots fully. If secure mode is enabled and the Secure Mode Boot option is also enabled, the system boots fully but requires a password before accepting any keyboard or mouse input.

System recovery

Take precautions that allow you to recover damaged files and recover your system in the event that your hard drive is damaged, or if your BIOS or system files get corrupted.

Creating a startup diskette

If your computer hard drive is damaged, you may not be able to start the computer from the hard drive. A startup diskette is a bootable diskette that lets you start the computer and attempt to fix the problem.

When you set up Windows NT you are prompted to create a startup diskette. If you did not choose to create a startup diskette at that time, you may create one later by running the Windows NT upgrade/installation program. Perform this process by going to the DOS Command Prompt, changing to the C:\I386 subdirectory and typing **"winnt32/ox"**. Press ENTER and follow the prompts.

Using your 7210 Companion CD

The *7210 Companion CD* included with your system can be used to:

- Install hardware drivers for Windows NT
- Reinstall selected utilities
- Access system documentation

Instructions for each operating system are provided with the *7210 Companion CD*.

7 Troubleshooting

Introduction

If the server does not operate correctly, re-read the instructions for the procedures you have performed. If an error occurs within an application, refer to the documentation supplied with the software. This section identifies solutions to some possible problems.

Troubleshooting checklist

Before turning on the system, make sure that:

- The power cord is connected to the AC power-in connector and an AC outlet.
- The AC outlet is supplying power.
- If a power strip is used it is turned on, setting the circuit breaker.
- The voltage selection switch on the system power supply reflects the proper voltage.

Verifying your configuration

If the server is not operating correctly, the BIOS may contain an invalid configuration parameter. Open the BIOS Setup utility and check your configuration settings. (See “About the BIOS Setup utility” on page 83.)

Troubleshooting guidelines

As you troubleshoot the server, keep the following guidelines in mind:

- Never remove the chassis cover while the computer is turned on.
- Do not attempt to open the monitor; it is extremely dangerous. Even if the power is disconnected, stored energy in the components can be dangerous.
- If a peripheral does not work, make sure that all connections are secure.
- If you see an error message on the screen, write it down, word for word. You may be asked about it when calling Gateway Client Care.
- Only qualified personnel should open the system for maintenance.
- If you are qualified to maintain the system yourself, make sure you are properly grounded before opening the system chassis. See Chapter 3, Case Access, for more information on preventing electrostatic damage to the system.

CD problems

An audio CD produces no sound

Probable cause	Solution
The CD is loaded incorrectly	Make sure that the label is facing up, then try again.
The speakers are not connected	Make sure that the speaker cables are connected properly and securely.
The speaker volume is turned down	Make sure the volume control is properly adjusted.
The speakers may be muted via the Multimedia volume control	Click the speaker icon on the task bar. Make sure the **Mute** checkbox is not selected.
The speakers may be faulty	Connect a set of headphones to the line-out jack on the rear of the computer to test the output. If they work, replace the speakers.

Probable cause	Solution
The sound card may not be installed correctly	Open the system, then reseat the sound card. Make sure that the cables are connected properly. Some systems do not have sound cards because sound capabilities are built into the system board.
The CD drive audio cable may be installed incorrectly	Open the system and make sure that the cables are connected properly. Some systems do not have sound cards because sound capabilities are built into the system board.

The system does not recognize the CD drive

Probable cause	Solution
The CD is not intended for PC use	Make sure that the disc is PC compatible.
The CD is loaded incorrectly	Make sure that the label is facing up, then try again.
The CDD is scratched or dirty	Try cleaning the CD with a lint-free cloth. Make sure the disk is not scratched.
The CD drive needs to be added as new hardware	In the **Control Panel** window (**Start** | **Settings** | **Control Panel**), double-click **Add New Hardware**. Follow the on-screen instructions for adding the drive. If you are not experienced with this procedure, call Gateway Client Care.
The secondary IDE device may be disabled	Restart your computer, then press F1 to enter the BIOS Setup utility program. From the **Advanced	IDE Configuration** menu, set the **IDE Controller** to **Both** and the **Secondary IDE Master** to **Auto**.
The CD drive cables are not installed correctly	Open the system, then make sure all cables between the IDE controller and the CD drive are correctly connected.
The CD drive may be defective	Replace the CD drive.

Hard drive problems

The system does not recognize the SCSI drive

Probable cause	Solution
SCSI hot-plug drive is not seated correctly	Open the system and reseat the hot-plug drive(s). This problem is most common immediately after shipping.
The SCSI bus is not properly terminated	Open the system and make sure that the last device on the SCSI chain is properly terminated.
The drive is configured with a conflicting SCSI address	Change the device's SCSI address to one that is not currently being used by the system.
The cables are not connected correctly	Open the system, then make sure the cables are connected properly.

The system does not recognize the IDE drive

Probable cause	Solution
The primary IDE device may be configured incorrectly	Restart your computer, then press F1 to open the BIOS Setup utility. From the **Advanced | IDE Configuration** menu, set the **IDE Controller** to **Both** and the **Primary IDE Master** to **Auto**.
The drive may not be configured properly	Consult the hard drive user's guide for instructions on how to configure the drive.
The drive cables are not connected properly	Open the system, then make sure all cables are properly connected to the controller card. Some systems do not have IDE controller cards because the IDE controller is built into the system board.
The drive controller is not seated properly	Open the system, then reseat the drive controller. Some systems do not have IDE controller cards because the IDE controller is built into the system board.

Memory and processor problems

The system detected memory errors during start up

Probable cause	Solution
Memory was added or removed, and the new configuration was not saved in the BIOS Setup utility	Open the BIOS Setup utility and save the new memory configuration.
The memory was installed incorrectly	Make sure that the memory is proper seated and oriented.
A memory chip is faulty	Replace the card with the faulty chip. Third-party diagnostic programs can help determine which chip or memory segment is failing.

The system does not recognize a new or second processor

Probable cause	Solution
The processor was installed incorrectly	Check the installation. The processor should be recognized automatically if it was installed correctly.
The processor speed was not set correctly in the BIOS Setup utility	If the server BIOS lets you select the processor speed, make sure that you have selected the proper speed.
The processor was not seated correctly in the socket	Make sure that the processor is fully seated in its socket.
The system only detected one processor	Enable the processor retest in the BIOS Setup utility.

Modem problems

The system does not recognize the modem

Probable cause	Solution
The modem has not been added as new hardware	Add the modem as new hardware.
The modem is not connected to a live phone jack	Make sure that the line connected to the modem is working and plugged into the appropriate port on the modem (line port).
The phone jack is shared by another modem or telephone	If the modem shares the jack with another device, make sure that the other device does not have the port open (for example, someone is on the phone, or another modem is in use).
The modem is not configured with a valid interrupt or address	Check the system settings for possible conflicts. If one exists, correct the problem by selecting an available interrupt and address.

Peripheral/Adapter problems

The system does not recognize a SCSI device

Probable cause	Solution
The device needs to be added as new hardware	From the **Control Panel** window (**Start | Settings | Control Panel**), double-click **Add New Hardware**. Follow the on-screen instructions for adding the device. If you are not experienced with this procedure, call technical support.
The SCSI ID may be invalid	Assign an available SCSI ID to the device.
The SCSI chain is not terminated	Make certain the last device on the SCSI chain is terminated.
The device cables are not installed correctly	Open the system, then check all cables between the controller and the device.

The system does not recognize the diskette drive

Probable cause	Solution
The diskette drive may be configured incorrectly	Restart your computer, then press F1 to enter the BIOS Setup utility. In the **Boot | Removable Devices** menu, make sure that the diskette drive parameters are set correctly.
The drive cables are not connected properly	Open the system, then make sure all cables are properly connected to the controller card. Some systems do not have a floppy controller card because the floppy controller is built into the system board.
The drive controller is not seated properly	Open the system, then reseat the drive controller. Some systems do not have a floppy controller card because the floppy controller is built into the system board.

The diskette drive will not read, write, or format

Probable cause	Solution
The diskette is not IBM-formatted	Make sure that the diskette you are trying to format is IBM compatible. If it is, try reformatting it. If not, get another diskette.
The disk is write protected	Make sure that the write-protection window on the upper-right corner of the diskette is closed (unprotected).
The diskette is corrupted	Run ScanDisk on the diskette. If errors are detected and corrected, try accessing the diskette again.

The diskette drive LED illuminates continuously

Probable cause	Solution
The diskette is corrupted	Remove the diskette from the drive. If the light remains on, try restarting the system.
The cable to the drive is not connected properly	Open the system, then make sure the cable between the diskette drive and its controller is properly connected. Make sure that the pins are not bent or misaligned.

The system does not recognize an expansion card

Probable cause	Solution
The interrupt or I/O address is set incorrectly	Check the address configuration of the adapter card and make sure that it does not conflict with another card in the system.
The card has not been configured through the software	Configure the card with the appropriate software.
The card was not installed correctly	Make sure the card jumpers are set correctly and reseat the card.

Printer problems

The printer will not turn on

Probable cause	Solution
The printer is not turned on	Make sure that the power switch is depressed or set to the On position. If power is applied to the printer, the green power LED should be illuminated.
The printer is not plugged in	Make sure that the power cable is plugged into a live power source.
The printer is defective	Try another printer, if one is available.

The printer is turned on but will not print

Probable cause	Solution
The printer is not connected to the system	Make sure the data cable between the printer and the system is properly connected. Make sure that it is connected to the proper port. Make sure the connector and cable have no bent or broken pins.
The printer is not designated as the default printer	If the printer that you are trying to print to is not the default printer, make sure that you have selected it through the program printer setup function.

Probable cause	Solution
The printer has not been added to the system	In the **Printers** window (**Start | Settings | Printers**), double-click **Add Printer**. Follow the on-screen instructions for adding the new printer.

The printer prints garbled text

Probable cause	Solution
The wrong driver is being used for the selected printer	In the Printers window (**Start** | **Settings** | **Printers**), select the printer. From the **File** menu, click **Properties**. Make sure that the printer is using the correct printer driver. If not, install the correct one.

System problems

The system will not start up

Probable cause	Solution
The system is not connected to an AC outlet	Make sure that the power cable is connected to an operating AC power source.
Voltage selection switch not set correctly	Make sure that the voltage selection switch is set to the correct power source.
Power supply alarm buzzes and power supply status LED blinks indicating a failed power supply module	Replace the indicated power supply module. (You can turn off the audible alarm by inserting an appropriate tool into the port on the front panel and pressing the switch.)
Power supply alarm buzzes and both power supply status LEDs blink, indicating a failed common component	Replace the entire power supply housing. (One or both of the power supply modules may also be bad.)

The system is non-responsive

Probable cause	Solution
An error occurs during an application or the server may be out of memory	Restart your computer by pressing the reset button. If the system is still non-responsive, press and hold in the power button for 4 seconds to turn the system off. Turn the system back on, then follow the on-screen instructions.
Keyboard, mouse, and front panel are locked out when the password is set	Enter the password.

The keyboard does not work

Probable cause	Solution
Keyboard is locked out when the password is set	Enter the password.
A key was depressed while the system was starting up	Clear the sticking key, then turn off the system, wait for a few seconds, then turn the system back on.
The keyboard is not plugged in or connected properly	Make sure the cable is properly connected.
Something spilled into the keyboard	Turn off the system. Turn the keyboard upside down to drain it, then turn is right-side up to let it dry before turning the system back on.
The keyboard is defective	Try a keyboard that you know is working.

The mouse does not work

Probable cause	Solution
Mouse is locked out when the password is set	Enter the password.

Probable cause	Solution
The mouse is not plugged in or connected properly	Make sure that the cable is plugged in correctly.
The mouse driver did not load when the system started	Load the appropriate mouse driver manually or contact technical support.
The mouse is defective	Try a mouse that you know is working.

The system power and reset buttons are not responsive:

Probable cause	Solution
The front panel is locked out when password is set	Enter the password.

Video problems

The system is running but the screen is blank

Probable cause	Solution
The terminator card or the second processor is not seated properly	Open the system and reseat the terminator card or the second processor.
The monitor is not turned on	Make sure that the monitor is plugged in and turned on. If power is applied to the monitor, the green power LED should illuminate.
The monitor data cable is not connected	Make sure that the monitor data cable is connected to the video controller on the back of the system.
The connector or cable is damaged	Check the connector and cable for bent or damaged pins.
The monitor brightness and contrast controls are turned down	Adjust the brightness and contrast knobs to the center position.
The monitor is defective	Connect a working monitor to the computer.

Probable cause	Solution
The video card is not seated correctly	Open the system and reseat the video card. The server board may have a built-in video adapter, so there may not be a video adapter to remove and replace.
The video card is not compatible with the system	Check the documentation or technical support to make sure that the video card is compatible with the system. If not, obtain a compatible video card. The server board may have a built-in video adapter, so there may not be a video adapter to remove and replace.

The image on the screen is dim or difficult to read

Probable cause	Solution
The monitor brightness and contrast controls are turned down	Adjust the brightness and contrast knobs until the text becomes clear.
Sunlight is glaring off the display	Position the monitor away from the sun or a window.
The monitor may be old	Replace the monitor.

The color monitor displays everything in black and white

Probable cause	Solution
The system was turned on before the monitor	Make sure that the monitor is turned on, then restart the system.
The display type is set incorrectly	In the Control Panel window (**Start** | **Settings** | **Control Panel**), double-click **Display**, set the display to the appropriate monitor type, then restart the system.

The displayed characters are garbled

Probable cause	Solution
The video cable is damaged	Make sure the connector and cable have no bent or damaged pins.

Probable cause	Solution
The display setup is incorrect	In the Control Panel window (**Start** | **Settings** | **Control Panel**), double-click **Display** and check the settings. The correct video type should be selected, along with a supported resolution. Check your monitor and video controller documentation for details.
The video card has failed	Try another video card.

The video is distorted

Probable cause	Solution
The monitor controls are not properly adjusted	Adjust the monitor controls until the text becomes clear. (See your monitor documentation for more information.)
The connector or cable is damaged	Check the connector and cable for bent or damaged pins.
The surge protector or UPS is damaged	Disconnect the monitor power cable, then connect it directly to the power source.
The monitor is too close to a source of electrical interference	Move the monitor away from sources of electrical interference, such as televisions, unshielded speakers, microwave ovens, fluorescent lights, and metal beams or shelves.
The monitor needs to be degaussed	Turn off the computer and monitor and leave them off for at least a half hour, then restart the system.

Error messages

This section lists common error messages that you may see. These messages often indicate procedural errors such as an incorrect keystroke or a write-protected diskette. Some messages, however, may indicate a problem that requires you to consult the troubleshooting section of this manual.

Error message	Solutions
Access denied	Try saving to a new file or diskette. Move the write-protection tab over the hole on the back of the diskette.
Bad command or file name	Make certain you entered the right command. Verify the specified drive, then try it again. If you are trying to exit MS-DOS to return to Windows, type **exit,** then press ENTER.
Base memory [xxx] expansion	This is an informational message only. No action is required.
Checking RAM on disk controller	Your BIOS configuration is incorrect. Open the BIOS Setup utility, then make sure the settings are correct.
CD-ROM is not recognized	See “The system does not recognize the CD drive” on page 107 for a possible solution.
Data error	Use ScanDisk on the drive with the error.
Decreasing available memory	Your BIOS configuration is incorrect. Enter the BIOS Setup utility, then make sure the settings are correct.
Diskette drive is not recognized	See “The system does not recognize the diskette drive” on page 111 for a possible solution.
Diskette drive 0 seek to track 0 failed	Enter the BIOS Setup utility, then make sure the settings are correct. Check the diskette drive cables. Make sure that Pin 1 on the cable aligns with Pin 1 on the connector.

Error message	Solutions
Diskette drive reset failed	Open the BIOS Setup utility, then make sure the settings are correct. Check the diskette drive cables. Make sure Pin 1 on the cable aligns with Pin 1 on the connector.
Diskette read failed - strike F1 to retry boot	Make sure that the boot disk contains the Command.com file. Use the configuration utility (if necessary) to make sure that your drive or controller configuration is correct. Press F1 to try to restart the computer.
Gate A20 failure	You may have an XT keyboard connected to an AT system or vice versa. Make sure that the keyboard is configured to work with the appropriate system. Some keyboards have a switch to select either AT or XT.
Hard disk controller failure	Make sure that the hard disk cable is properly connected. Open the BIOS Setup utility, then make sure that the correct drive type is selected.
Hard disk controller failure - press F1 to try reboot	The drive controller may be defective. Press F1 to try to restart the computer. Try running Fdisk and DOS Format. For more information, refer to your DOS documentation.
Insert bootable media device	See “The system does not recognize the IDE drive” on page 108 for a possible solution. See “The system does not recognize the SCSI drive” on page 108 for a possible solution. Backup your files as soon as possible.
Insufficient disk space	Check the free space on the disk volume. If the volume is full or almost full, remove unnecessary files.
Invalid configuration information	Open the BIOS Setup utility, then make sure the settings are correct.

Error message	Solutions
Invalid password	Enter your password again, making certain to enter it correctly. If you do not know the password, you may need to reinstall the software you are trying to access. Startup passwords are stored in BIOS. If this password has been set and is unknown, you may be able to reset the password via system board jumper settings.
Keyboard clock line failure	Try a working keyboard. Make sure that the keyboard is compatible with the system. You may have to change the switch setting to AT.
Keyboard controller failure	Try a working keyboard. Make sure that the keyboard is compatible with the system. You may have to change the switch setting to AT.
Keyboard controller failure	Try a working keyboard. Make sure that the keyboard is compatible with the system. You may have to change the switch setting to AT.
Keyboard not detected	See “The keyboard does not work” on page 114 for a possible solution. Turn off the system, then check the keyboard cable.
Keyboard stuck key failure	Remove any objects that may be resting on the keyboard, then restart the system. Check for sticking keys. Clean the keyboard if necessary.
Memory errors were detected while the system powered up	See “The system detected memory errors during start up” on page 109 for a possible solution.
Memory size error	Enter the BIOS Setup utility and save the memory configuration.
Non-system disk or disk error	Eject the diskette, then press ENTER. If the diskette is bootable, check it for errors.

Error message	Solutions
Not enough memory	Close all programs that are not currently in use.
Print queue is full	Wait until the current print job has completed before sending another print job. If you receive this error often, you need to add memory to the printer.
Printer is out of paper	Add paper to the printer. Make sure that the printer is online.
Required parameter missing	Make sure that you entered the right command. If you are trying to exit MS-DOS to return to Windows, type **exit**, then press ENTER.
Syntax error	Make sure that you entered the right command. If you are trying to exit MS-DOS to return to Windows, type **exit**, then press ENTER.
Time and date not set	Open the BIOS Setup utility, then set the system date and time.
Write protect error	Move the write-protection tab over the hole on the back of the diskette.

Safety, Regulatory, and Notices

A

The Gateway 7210 Server originally shipped with a Class A rating according to FCC rules part 15. Later modifications may have improved the rating to Class B. To check the rating of the system as shipped to you, check the FCC label at the back of the chassis for the rating.

Important safety information

Your Gateway system is designed and tested to meet the latest standards for safety of information technology equipment. However, to ensure safe use of this product, it is important that the safety instructions marked on the product and in the documentation are followed.

Warning

Always follow these instructions to help guard against personal injury and damage to your Gateway system.

Setting up your system

- Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.
- Do not use this product near water or a heat source such as a radiator.
- Make sure you set up the system on a stable work surface.
- The product should only be operated from the type of power source indicated on the rating label.
- If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area. The voltage selector switch is set at the factory to the correct voltage.

- Openings in the computer case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space, at least 6 inches (15 cm), around the system for ventilation when you set up your work area. Never insert objects of any kind into the computer ventilation openings.
- Some products are equipped with a three-wire power cord to make sure that the product is properly grounded when in use. The plug on this cord will only fit into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into an outlet, contact an electrician to install the appropriate outlet.
- If you use an extension cord with this system, make sure that the total ampere rating on the products plugged into the extension cord does not exceed the extension cord ampere rating.
- If your system is fitted with a TV Tuner, cable, or satellite receiver card, make sure that the antenna or cable system is electrically grounded to prevent against voltage surges and build up of static charges.

Care during use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill anything on the system. The best way to avoid spills is to avoid eating and drinking near your system.
- Some products have a replaceable CMOS battery on the system board. There is a danger of explosion if the CMOS battery is replaced incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer. Dispose of batteries according to the manufacturer's instructions.
- When the computer is turned off, a small amount of electrical current still flows through the computer. Always unplug all power cables and modem cables from the wall outlets before cleaning the system.
- Unplug the system from the wall outlet and refer servicing to qualified personnel if:
    - The power cord or plug is damaged.
    - Liquid has been spilled into the system.
    - The system does not operate properly when the operating instructions are followed.
    - The system was dropped or the cabinet is damaged.
    - The system performance changes.

Replacement parts and accessories

Use only replacement parts and accessories recommended by Gateway.

Important

Do not use Gateway products in areas classified as hazardous locations. Such areas include patient care areas of medical and dental facilities, oxygen-laden environments, or industrial facilities.

Regulatory compliance statements

American users

FCC Part 15

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.
- Use only shielded cables to connect peripherals to the system.

Accessories: This equipment has been tested and found to comply with the limits of a Class A digital device. The accessories associated with this equipment are: shielded video cable. These accessories are required to be used in order to ensure compliance with FCC rules.

Caution

Changes or modifications not expressly approved by Gateway could void the user's authority to operate the equipment.

FCC Part 68 (applicable to products fitted with USA modems)

Your modem complies with Part 68 of the Federal Communications Commission (FCC) rules. On the computer or modem card is a label that contains the FCC registration number and Ringer Equivalence Number (REN) for this device. If requested, this information must be provided to the telephone company.

An FCC compliant telephone line cord with a modular plug is required for use with this device. The modem is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant. See installation instructions for details.

The Ringer Equivalence Number (REN) is used to determine the number of devices which may be connected to the telephone line. Excessive REN's on a telephone line may result in the devices not ringing in response to an incoming call. In most areas, the sum of REN's should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total REN's, contact the local telephone company.

If this device causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. The telephone company may request that you disconnect the equipment until the problem is resolved.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of this equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

This equipment cannot be used on telephone company provided coin service. Connection to party line service is subject to state tariffs. Contact the state public utility commission or public service commission for information.

When programming or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in the off-peak hours such as early morning or late evenings.

The United States Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. Refer to your fax communication software documentation for details on how to comply with the fax-branding requirement.

Canadian users

ICES-003

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

DOC Notice (for products fitted with an IC-compliant modem)

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the users' satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Warning

To avoid electrical shock or equipment malfunction you should not attempt to make electrical ground connections by yourself, but should contact the appropriate inspection authority or an electrician, as appropriate.

The **Ringer Equivalence Number** (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

European users

European directives

This Information Technology Equipment has been tested and found to comply with the following European directives:

- EMC Directive 89/336/EEC amending directive 92/31/EEC & 93/68/EEC as per
  - EN 55022:1995 Class A
  - EN 55024:1998 according to
    - EN 61000-4-2:1995
    - EN 61000-4-3:1996
    - EN 61000-4-4:1995
    - EN 61000-4-5:1995
    - EN 61000-4-6:1996
    - EN 61000-4-8:1994
    - EN 61000-4-11:1994
- Low Voltage Directive (Safety) 73/23/EEC as per EN 60950: 1992(A1/A2/A3/A4/A11)

European Telecommunication Information (for products fitted with EU approved modems)

Marking by the symbol CE **** X indicates compliance of this equipment to the Telecom Terminal Equipment and Satellite Earth Stations Directive 98/13/EEC. Such marking is indicative that this equipment meets or exceeds the following technical standards:

CTR 21 (1998) - Attachment requirements for pan-European approval for connection to the analogue Public Switched Telephone Networks (PSTNs) of TE (excluding TE supporting voice telephony services) in which network addressing, if provided, is by means of Dual Tone Multi Frequency (DTMF) signaling.

Warning

Although this equipment can use either loop disconnect (Pulse) or DTMF (Tone) signaling, only the performance of the DTMF signaling is subject to regulatory requirements for correct operation. It is therefore strongly recommended that the equipment is set to use DTMF signaling for access to public or private emergency services. DTMF signaling also provides faster call set up.

This equipment has been approved to Council Decision 98/482/EEC--"CTR 21" for Pan-European single terminal connection to the Public Switched Telephone Network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN termination point. In the event of problems, you should contact Gateway customer support.

Japanese users

VCCI statement

This equipment is in the Class A category (Information Technology Equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment aimed at preventing radio interference in such residential area. When used near a radio or TV receiver, it may become the cause of radio interference. Read instructions for correct handling.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Australia and New Zealand users

EMI statement

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to the Australian/New Zealand standard AS/NZS 3548 set out by the Australian Communications Authority and Radio Spectrum Management Agency.

New Zealand Telecommunication statement (for products fitted with Telepermit approved modems)

The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

This equipment shall not be set up to make automatic calls to the Telecom '111' Emergency Service

Important

Under power failure conditions, this telephone may not operate. Please ensure that a separate telephone, not dependent on local power, is available for emergency use.

Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PC) associated with this device. The associated equipment shall be set to operate within the following limits for compliance with Telecom's Specifications:

(a) There shall be no more than 10 calls to the same number within any 30 minute period for any single manual call initiation, and

(b) The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next attempt.

The equipment shall be set to ensure that automatic calls to different numbers are spaced such that there is no less than 5 seconds between the end of one call attempt and the beginning of another.

The equipment shall be set to ensure that calls are answered between 3 and 30 seconds of receipt of ringing.

Laser safety statement

All Gateway systems equipped with CD and DVD drives comply with the appropriate safety standards, including IEC 825. The laser devices in these components are classified as "Class 1 Laser Products" under a US Department of Health and Human Services (DHHS) Radiation Performance Standard. Should the unit ever need servicing contact an authorized service location.

Warning

Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. To prevent exposure to laser beams, do not try to open the enclosure of a CD or DVD drive.

Television antenna connectors protection (for systems fitted with TV/cable TV tuner cards)

External television antenna grounding

If an outside antenna or cable system is to be connected to your Gateway PC, make sure that the antenna or cable system is electrically grounded to provide some protection against voltage surges and built up static charges.

Article 810 of the National Electrical Code, ANSI/NFPSA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Lightning protection

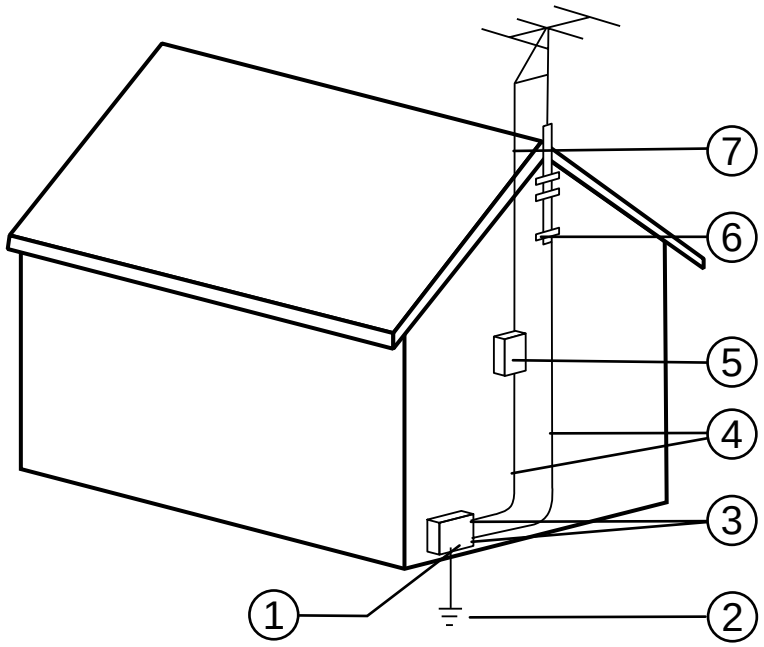
For added protection of any Gateway product during a lightning storm or when it is left unattended or unused for long periods of time, unplug the product from the wall outlet and disconnect the antenna or cable system.

Power lines

Do not locate the antenna near overhead light or power circuits, or where it could fall into such power lines or circuits. When installing or re-aligning an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits. Contact with them could be fatal.

Warning

When installing or realigning an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits. Contact with them could be fatal.



Antenna and satellite grounding

Reference	Grounding component
1	Electric service equipment
2	Power service grounding electrode system (NEC Art 250, Part H)
3	Ground clamps
4	Grounding conductors (NEC Section 810-21)
5	Antenna discharge unit (NEC Section 810-20)
6	Ground clamp
7	Antenna lead-in wire

Notices

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System Specifications

B

The following specifications are for the standard configuration. The server may contain optional equipment. All specifications are subject to change.

Case size	Width: 8.6-inch Depth: 28.8-inch Height: 17.4-inch with feet 20.0-inch with outriggers and castors
Processors	As many as two Intel® Pentium III™ processors operating at 600 MHz and faster
Cache	256K on processor
RAM	Four DIMM sockets support up to 2.0 GB of PC/100 SDRAM
BIOS	Flash BIOS for easy updates from diskette
IDE interfaces	Two PCI IDE controllers support as many as two ATAPI/IDE devices each (hard drives or CDs) for a total of as many as four IDE devices
Diskette drive interface	Diskette drive controller is integrated on the system board
I/O ports	One parallel port, two serial ports, two USB ports, one PS/2 keyboard port, one PS/2 mouse port, one RJ-45 network port
Power supply	320 W PS/2 power supply or 350 W redundant power supply
SCSI interfaces	Integrated Adaptec AIC 7896 SCSI controller
Network interface	Intel 82559 PCI ethernet controller
Server management	Monitoring, alerting, and logging of critical system information obtained from embedded sensors on the system board, including thermal levels, voltage levels, fan speeds, and chassis intrusion monitoring.

Expansion slots	Four 32-bit, 33 MHz PCI slots, two 32-bit, 66 MHz PCI slots, and one ISA slot
Drive Bays	Four 5.25-inch drive bays (one occupied by CD drive), one external 3.5-inch drive bay (occupied by diskette drive), one 3.5-inch internal drive bay (occupied by optional hard drive), and six hot-plug bays (at least one is occupied by a 1-inch high hot-plug drive).

Environmental specifications

The following specifications identify maximum environmental conditions. At no time should the server run under conditions which violate these specifications.

Temperature, operating	10° to 35° Celsius or 50° to 95° Fahrenheit.
Humidity, operating	20% to 80%
Altitude	-200 feet to 10,000 feet
Voltage, AC input	90 to 135 VAC, 180 to 265 VAC
Frequency	47 to 63 Hz
Certification	FCC Class B, ETL Listed to UL 1950, CAN/CSA STD C22.2 No. 950, CE Mark, VCCI Class A, CB scheme

System I/O addresses

The following table shows the location in I/O space of all directly I/O-accessible registers.

Address	Resource
0000h - 000Fh	DMA Controller 1
0010h - 001Fh	DMA Controller 1
0020h - 0021h	Interrupt Controller 1
0022h - 0023h	
0024h - 0025h	Interrupt Controller 1
0026h - 0027h	
0028h - 0029h	Interrupt Controller 1

Address	Resource
002Ah - 002Bh	
002Ch - 002Dh	Interrupt Controller 1
002Eh - 002Fh	Super I/O Index and Data Ports
0030h - 0031h	Interrupt Controller 1
0032h - 0033h	
0034h - 0035h	Interrupt Controller 1
0036h - 0037h	
0038h - 0039h	Interrupt Controller 1
003Ah - 003Bh	
003Ch - 003Dh	Interrupt Controller 1
003Eh - 003Fh	
0040h - 0043h	Programmable Timers
0044h - 004Fh	
0050h - 0053h	Programmable Timers
0054h - 005Fh	
0060h, 0064h	Keyboard Controller
0061h	NMI Status and Control Register
0063h	NMI Status and Control Register
0065h	NMI Status and Control Register
0067h	NMI Status and Control Register
0070h	NMI Mask (bit 7) and RTC Address (bits 6::0)
0072h	NMI Mask (bit 7) and RTC Address (bits 6::0)
0074h	NMI Mask (bit 7) and RTC Address (bits 6::0)
0076h	NMI Mask (bit 7) and RTC Address (bits 6::0)
0071h	RTC Data
0073h	RTC Data
0075h	RTC Data
0077h	RTC Data
0080h - 008Fh	DMA Low Page Register
0090h - 0091h	DMA Low Page Register
0092h	System Control Port A (PC-AT control Port)

Address	Resource
0093h - 009Fh	DMA Low Page Register
0094h	Video Display Controller
00A0h - 00A1h	Interrupt Controller 2
00A4h - 00A15	Interrupt Controller 2
00A8h - 00A19	Interrupt Controller 2
00Ach - 00Adh	Interrupt Controller 2
00B0h - 00B1h	Interrupt Controller 2
00B2h	Advanced Power Management Control
00B3h	Advanced Power Management Status
00B4h - 00B5h	Interrupt Controller 2
00B8h - 00B9h	Interrupt Controller 2
00BCh - 00BDh	Interrupt Controller 2
00C0h - 00DFh	DMA Controller 2
00F0h	Clear NPX error
00F8h - 00FFh	x87 Numeric Coprocessor
0102h	Video Display Controller
0170h - 0177h	Secondary Fixed Disk Controller (IDE)
01F0h - 01F7h	Primary Fixed Disk Controller (IDE)
0200h - 0207h	Game I/O Port
0220h - 022Fh	Serial Port A
0238h - 023Fh	Serial Port B
0278h - 027Fh	Parallel Port 3
02E8h - 02Efh	Serial Port B
02F8h - 02FFh	Serial Port B
0338h - 033Fh	Serial Port B
0370h - 0375h	Secondary Diskette
0376h	Secondary IDE
0377h	Secondary IDE/Diskette
0378h - 037Fh	Parallel Port 2
03B4h - 03Bah	Monochrome Display Port
03BCh - 03BFh	Parallel Port 1 (Primary)

Address	Resource
03C0h - 03CFh	Video Display Controller
03D4h - 03DAh	Color Graphics Controller
03E8h - 03EFh	Serial Port A
03F0h - 03F5h	Diskette Controller
03F6h - 03F7h	Primary IDE - Sec. Diskette
03F8h - 03FFh	Serial Port A (Primary)
0400h - 043Fh	DMA Controller 1, Extended Mode Registers
04D0h - 04D1h	Interrupt Controllers 1 and 2 Control Register
0678h - 067Ah	Parallel Port (ECP)
0778h - 077Ah	Parallel Port (ECP)
07BCh - 07BEh	Parallel Port (ECP)
0CA0 - CA3h	BMC Registers
0CF8h	PCI CONFIG_ADDRESS Register
0CF9h	NBX Turbo and Reset control
0CFCh	PCI CONFIG_DATA Register
46E8h	Video Display Controller

Memory map

Address Range (hex)	Amount	Function
0 to 07FFFFh	640 KB	DOS region, base system memory
0A0000h to 0BFFFFh	128 KB	Video or SMM memory
0C0000h and 0DFFFFh	128 KB	Expansion card BIOS and buffer area
0F0000h to 0FFFFFh	128 KB	System BIOS
0E0000h to 0EFFFFh	64 KB	Extended system BIOS
FC000000h to FFFFFFFFh	64 MB	PCI memory space

Interrupts

The following table suggests a logical interrupt mapping of interrupt sources; it reflects a typical configuration, but you can change these interrupts. Use the information to determine how to program each interrupt. The actual interrupt map is defined using configuration registers in the I/O controller. I/O Redirection Registers in the I/O APIC are provided for each interrupt signal. The signals define hardware interrupt signal characteristics for APIC messages sent to local APIC(s).

Important

If you disable either IDE controller to free the interrupt for that controller, you must physically unplug the IDE cable from the system board. Simply disabling the drive by configuring the SSU option does not make the interrupt available.

Interrupt	I/O APIC Level	Description
INTR	INT0	Processor interrupt
NMI	N/A	NMI from PIC to processor
IRQ1	INT1	Keyboard interrupt
Cascade	INT2	Interrupt signal from second 8259
IRQ3	INT3	Serial port A or B interrupt from SIO device (you can configure either)
IRQ4	INT4	Serial port A or B interrupt from SIO device (you can configure either)

Interrupt	I/O APIC Level	Description
IRQ5	INT5	Parallel port II
IRQ6	INT6	Diskette port
IRQ7	INT7	Parallel port
IRQ8_L	INT8	RTC interrupt
IRQ9	INT9	Signal control interrupt (SCI) used by ACPI-compliant operating system
IRQ10	INT10	
IRQ11	INT11	
IRQ12	INT12	Mouse interrupt
IRQ13	INT13	Co-processor interrupt
IRQ14	INT14	Compatibility IDE interrupt from primary channel IDE devices 0 and 1
IRQ15	INT15	
SMI_L		System management interrupt - general purpose indicator sourced through the PID to the processors

DMA usage

The following table lists the direct memory access (DMA) channels that the system typically uses and which ones are available for use by add-in devices.

DMA	Resource
0	Cascade
1	Available
2	Floppy Controller
3	Available
4	Redirect Cascade
5	Available
6	Available
7	Available

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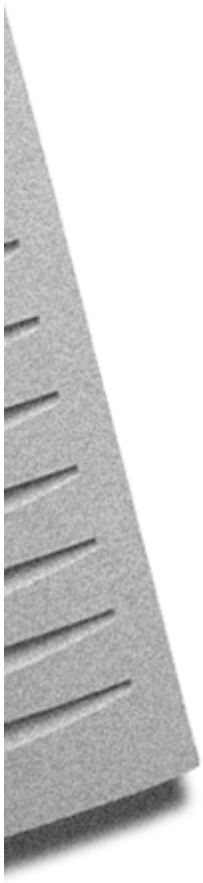

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